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ABSTRACT

This guide contains a curriculum featuring learnings and activities concerning environmental health of the home, neighborhood and city. There are six main sections to this guide: (1) Resources - containing sections on solid wastes, sound, radiation, air, water, shelter, and chemicals; (2) Environment - containing sections on positive and negative aspects of the environment, the environment's effect on people, public properties, and vandalism; (3) People - containing sections on apathy, fatalism, and cultural arts and environment; (4) Cooperative Action - containing sections dealing with the responsibility for cooperative action by community agencies; (5) Consumerism - containing sections on product safety, consumer power, and consumer laws; and (6) Conservation - containing sections showing the relationships between resources, life styles, diseases, and the various alternatives available to us. Each section has learning statements, learning activities and teacher notes that include background information, the application of the activity to the local community, a vocabulary list, a list of materials needed and appropriate supplementary films, books and resource materials. (Author/AJ)

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ED141081

AN EDUCATIONAL GUIDE FOR PLANNING AN IMPROVED HUMAN ENVIRONMENT

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
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SE 022 539

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for Planning
an Improved Human Environment

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TABLE OF CONTENTS

PAGES

I. HOW TO USE ... "AN EDUCATIONAL GUIDE FOR PLANNING AN IMPROVED HUMAN ENVIRONMENT" 1-2

II. INTRODUCTION 3-12

III. RESOURCES

Solid Waste - In the process of satisfying their needs, people produce solid wastes. 13-20
Sound (Noise) - Sound is a vital part of our existence. 21-30
Radiation - Radiation is essential to life. 31-38
Air - Clean air is essential to life 39-46
Water - Clean water is essential to life. 47-54
Shelter - A good home environment is essential to life. 55-58
Chemical - Chemicals are essential to life. 59-66

IV. ENVIRONMENT

Definition - Everything around us is part of our environment. 67-70
Positive vs. Negative - All people benefit from a clean environment and suffer from an unclean environment. 71-74
Effect Upon People - The environmental setting in which a person lives and works can either help or hinder his emotional growth. 75-78
Aesthetic Satisfaction - It is aesthetically satisfying to the individual to improve his immediate environment. 79-82
Public Properties - It is each individuals's right and responsibility to enjoy and care for public parks, playgrounds and properties. 83-86
Vandalism - Vandalism often aggravates already critical environmental conditions. 87-90

V. PEOPLE

Importance of People - People are the most important part of the environment. 91-94
People Power - People in a community can either improve their environment or let it decay. 95-98
Psychological Impact - Environmental factors can have an emotional and psychological influence upon our personalities. 99-102
Apathy, Fatalism, Helplessness - Attitudes such as apathy, fatalism and helplessness can deter environmental improvement. 103-106
Cultural Arts and Environment - Environmental attitudes of the day can be observed in our culural achievements. 107-110
Positive Attitudes - Positive attitude and effort are needed in developing on-going environmental improvement programs. 111-114

VI. COOPERATIVE ACTION

Responsibility - People are responsible for taking care of their environment.	115-118
Power of Cooperation - People working together can help to solve the environmental problems of their homes, schools, and communities.	119-122
Effect of Cooperation of Community Agenices - Cooperation between community agencies and area residents can improve the enironmental health and safety of a whole city.	123-126
Problem Solving - Applying problem-solving techniques to environmental problems provides a method for change.	127-130
International vs. Isolationism - Environmental health is of international concern.	131-136
Environmental Evaluation - Progress has been made toward the implementation of solutions to environmental problems.	137-140

VII. CONSUMERISM

Product Safety - We should check all products (toys) before we buy them because some are unsafe.	141-146
Power of Consumer - The consumer has great power to bring about the changes he desires.	147-150
Effect of Quality Control - The food we eat and the milk we drink are checked for cleanliness before they reach our tables.	151-156
Legal Action - Citizen concern, community action, and governmental legislation help to improve the environmental health and safety of our country.	157-162
Laws, Agencies - Pure food and drug laws and regulations as well as consumer organizations aim at protecting the consumer.	163-168
Consumer Evaluation Criteria - Health and safety criteria aid in the evaluation and selection of food, drugs, household and recreation equipment.	169-174

VIII. CONSERVATION

Resources, Life Styles, Technology - The availability of natural resources cannot always keep up with society's life-styles and needs.	175-178
Health vs. Disease - Throughout history, environmental, technological, religious, and/or social factors have influenced the quality of life and the quality of health of people.	179-190
Resources, Use and Misuse - A society may use its resources wisely or misuse them through wasteful activities.	191-196
Conservation of Resources - Co-operative conservation action must occur if we are to preserve our resources and maintain a quality of life.	197-204
Checks and Balances - A system of checks and balances in conservation of resources is necessary in order to maintain the existing quality of life	205-216

Alternatives - Our society may destroy its living and habitable environment unless our people carefully choose environmental ALTERNATIVES. 217-232

APPENDIX

A. AN ENVIRONMENTAL APPROACH TO HEALTH AND QUALITY LIVING 233

B. LIST OF SOME FACTORS WHICH INFLUENCE ENVIRONMENTAL HEALTH, COMFORT, AND SAFETY OF INDIVIDUALS 234

C. AUDIO-VISUAL AIDS ... ACCESS TO FILMS

D. GOVERNMENTAL AGENCIES AND PEOPLE IN THE ENVIROMENT 237-239

E. INDUSTRIAL AND ASSOCIATION REFERENCE SOURCES 240-244

F. GLOSSARY OF ENVIRONMENTAL TERMS 245-255

NOTE TO THE USER:

Reference has been made in some parts of this book to the City of Cleveland Department of Public Health. This has been used as an example with the intention being for the user of this book to substitute the name of the appropriate local or state health agency.

"Each second we live is a new and unique moment of the universe, a moment that never was before and will never be again. And what do we teach our children in school? We teach them that two and two make four and that Paris is the capital of France. When will we also teach them what they are? We should say to each of them: "Do you know what you are? You are a marvel. You are unique. In all the world there is no other child exactly like you. In the millions of years that have passed, there has never been another child exactly like you. And look at your body -- what a wonder it is! Your legs, your arms, your cunning fingers, the way you move! You may become a Shakespeare, a Michelangelo, a Beethoven. You have the capacity for anything. Yes, you are a marvel. And when you grow up, can you then harm another who is, like you, a marvel? You must cherish one another. You must work - we all must work --- to make this world worthy of its children."

-Pablo Casals

HOW TO USE

Understanding the Schematic:

It is important that you understand the Schematic which appears below and throughout this book. The Schematic and the relationship of each of the units (boxes) presented will serve as a convenient outline and help you to gain maximum benefit and use from An Educational Guide for Planning an Improved Human Environment.

There are six (6) main sections to this GUIDE as you can tell from the yellow dividers. These six sections are:

RESOURCES: (pages 13 - 66) with units on solid waste, sound (noise), radiation, air, water, shelter, and chemicals;

ENVIRONMENT: (pages 67 - 90) with units on its definition, its positive and negative aspects, environment's effect upon people, aesthetic satisfaction, public properties, and vandalism;

PEOPLE: (pages 91 - 114) with units on the importance of people, the power of people, psychological impact of environment upon people, apathy -- fatalism -- helplessness, cultural arts and environment, and positive attitudes of people about their environment.

COOPERATIVE ACTION: (pages 115 - 140) with units dealing with the responsibility for cooperative action, the power of cooperation, the effect of cooperation by community agencies, cooperative problem-solving, the concept of internationalism vs. isolationism, and environmental evaluation, and;

CONSUMERISM: (pages 141 - 174) with units on product safety -- toys, for example, the power of the consumer, the effect of quality control -- food and milk, for example, legal action by consumers, the laws and agencies governing consumers, and consumer evaluation criteria, and lastly;

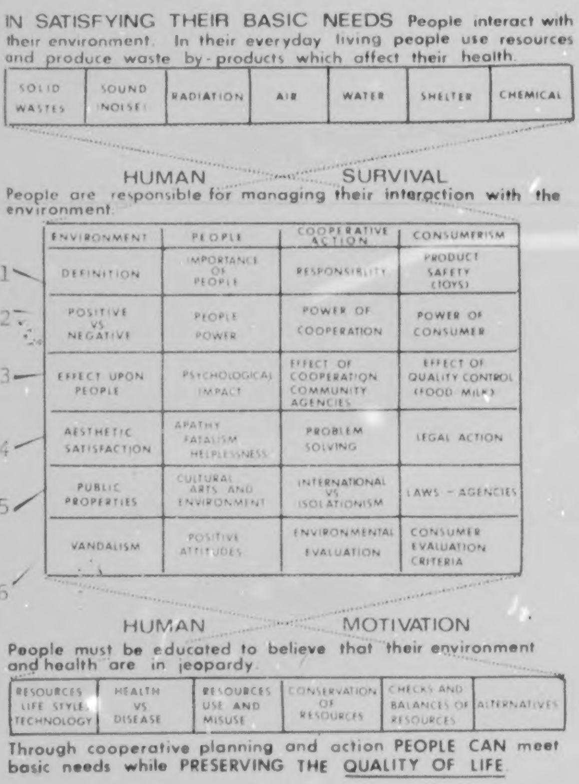
CONSERVATION: (pages 175 - 232) with units showing the relationship between resources -- life styles -- technology, health vs. disease, the use and misuse of resources, the need for conservation of resources, the various checks and balances of resources, and, very importantly, the various alternatives available to us.

Please Note:

1) There are no defined levels for the RESOURCES and CONSERVATION sections. Each unit contains material applicable for all levels.

2) The units in the center block of the Schematic are arranged from the least complex (level one) to the most complex (level six.) The material is merely presented in a progressive fasion, but not according to school grade levels.

3) Throughout the book, a copy of the Schematic will appear directly before each unit. The particular unit which follows will be darkened on the Schematic.



IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

Resources (7 Units)

SOLID WASTES	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment.

Least Complex

	ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
level 1	DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
level 2	POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
level 3	EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD MILK)
level 4	AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
level 5	PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS - AGENCIES
level 6	VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

Most Complex

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

Conservation (6 units)

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action **PEOPLE CAN** meet basic needs while **PRESERVING THE QUALITY OF LIFE**.

VARIOUS WAYS OF USING THE SCHEMATIC

There are many ways to use the material in this GUIDE. The beauty of the program lies in its flexibility as well as in the inter-relatedness of all the units and sections. The concept and activities have been developed in both a horizontal as well as vertical progression. This means that the teacher may use creativity in combining units appropriate for particular learning objectives.

	IF YOUR OBJECTIVES ARE:	DETERMINING WHICH UNITS TO USE:
	You wish to teach all about resources and waste by-products.	Use each unit in the RESOURCES section.
OR	You wish to teach all about conservation.	Use each unit in the CONSERVATION section.
OR	You wich to show the inter-relationships between RESOURCES and CONSERVATION.	Select one unit in RESOURCES, water, for instance, and then use it as an example for each of the CONSERVATION units you care to highlight. Expand as you see fit.
OR	You wish to show environment's impact upon people.	Use all of the ENVIRONMENT units vertically (level 1 through 6), as applicable.
OR	You wish to show the role and attitudes of people in their environment	Use all of PEOPLE units vertically (level 1-6), as applicable.
OR	You wish to show the impact of cooperation upon environment.	Use all of the COOPERATION units vertically (level 1-6), as applicable.
OR	You wish to show the impact of controls of consumerism upon environment through individual and cooperative action.	Use all of CONSUMERISM units vertically (level 1-6), as applicable.
OR	You wish to expose students to the interrelationships which exist between each of the four sections (ENVIRONMENT, PEOPLE, COOPERATIVE ACTION, AND CONSUMERISM).	Select the most appropriate learning level of the class, and then proceed to use that same level unit in each of the secitons. For example, going horizontally across Level 2: Positive vs. Negative (p. 71), People Power (p. 95), Power of Cooperation (p. 119), Power of Consumer (p. 147).
OR	You wish to zero-in on a concept such as "Problem-Solving" or the "Power of the Consumer" and relate it to both RESOURCES and CONSERVATION.	Choose whatever unit seems appropriate in the Schematic's center block of 24 units, and combine it with any of the units in the RESOURCES and/or CONSERVATION section.
OR EVEN IF	You are not sure what you want or where to start!	Browse through the book and choose whatever unit appeals to you!

Introduction to . . .

"An Educational Guide for Planning an Improved Human Environment"

A. PROGRAM INTENT AND PERSPECTIVE

A. BASIC PHILOSOPHY

The dignity of every human being together with his right to survive is a main reason for environmental betterment.

Each individual is responsible for his own health.

Each individual should extend this responsibility to the health and welfare of the community.

Each individual should take it upon himself to alleviate within his power, those environmental health problems affecting himself and his society.

Each individual should be acquainted with the various organs of the Cleveland Department of Public Health and Welfare and be familiar with the services offered to him and the community by the Department.

Each individual should be acquainted with the ways in which he can cooperate with the Department of Public Health and Welfare in carrying out the services provided.

B. LONG RANGE GOALS

1) To alleviate some of the existing environmental hazards.

2) To create in young people an awareness of environmental problems in the hopes that the adult (parent) population will join its children in recognizing the gravity of existing conditions.

3) To stimulate young people to critically analyze existing environmental conditions and develop a sensitivity for meaningful solutions to these and any future problems.

4) To develop an understanding of urban living and techniques used in the preservation of the urban environment.

5) To incorporate into the curriculum, an environmental education program for young people on all grade levels; to adopt an interdisciplinary approach to both the vertical and horizontal development of the program.

C. SHORT RANGE OBJECTIVES

1) To acquaint young people with the general area of environmental health and environmental education.

2) To relate the deterioration of environmental health to personal health.

3) To stimulate inverse feedback from teachers, young people, administrators, parents, etc. regarding the need for inclusion of environmental health into the curriculum (even if on a limited scale at the onset).

4) To suggest to individuals, classes, schools, groups, etc. various environmental activities which can be carried out in differing degrees of involvement.

5) To give young people the satisfaction of making positive changes in their immediate environment by providing them with training in housing and neighborhood upkeep, rat and insect control, sanitation procedures, consumerism, co-operative action, food protection, preservation of resources, citizen action needed to preserve environmental air and water quality, etc.

6) To create student interest in on-going community projects conducted by the city, clubs, groups, or fraternal organizations.

B. ENVIRONMENT IN EDUCATION: A PRAGMATIC LOOK

The environmental health of our nation's people is of increasing concern to all aware citizens.

People in all walks of life are showing interest in environmental information. Pollution, rats, and garbage are not prejudiced.....people of all ages, races, socioeconomic backgrounds, and locations are directly affected.

It has been erroneously thought that only inner city locations are affected by rats, roaches, and air and water pollution. People in the suburbs, despite indications which point toward the movement to the suburbs of every inner city health hazard, have long felt protected by an "environmental curtain". Unfortunately, this has only offered them a false sense of security.

Environmentalists and educators are, consequently, sensing the need to include environmental learnings in the total curriculum. Not only does environmental education acquaint students with existing conditions, it also should be designed to give young people an active participatory role in ongoing environmental betterment programs and projects.

This handbook, "AN EDUCATIONAL GUIDE FOR PLANNING AN IMPROVED HUMAN ENVIRONMENT", has been prepared in an effort to assist teachers and others involved in the educational process to involve young people in meaningful learning activities at school, at home, and in the community. It is envisioned that the contents herein may be adapted for presentation to all age groups. The material in each folder has been purposely written to include relatively unsophisticated activities as well as those requiring more knowledge, more advanced research capabilities, and experience. Ideally, the Guide will be used within the following framework:

1. A planned, progressive curriculum featuring ongoing environmental education learnings and activities
2. The direct and immediate applicability of conceptual learnings to the daily lives of students
3. Environmental curriculum development in consultation with environmentalists working in the field
4. The integration of all environmental spheres, each in relationship to the others, for broad environmental understanding.

Too often we have seen well-intentioned but unsuccessful attempts by teachers to conduct such programs. Young people and teachers are stimulated by the problems they see and then almost immediately frustrated by their inability to respond to those problems within most curriculums.

Consequently, this Guide is based upon our belief that it is essential that a systematized curriculum be developed. Environmental perceptions are developed in a progressively complex nature, with concepts and activities expanded in a horizontal learning manner as well as in a vertical plane.

As educators and environmentalists working in the environmental field, we feel that these concepts and activities are technically accurate, applicable, and reflective of the home-neighborhood-community environment. Too often curriculums are developed without appropriate assistance and, unfortunately, do not lend themselves to practical application. We suggest that a relationship existing between the educational institution in a community and the professionals working in that community lends balance and reality to an academic curriculum design.

The development of depth understanding of environmental interrelationships and the action that such understanding generally prompts necessitate a decided commitment on the part of teachers to incorporate such teachings into the curriculum. Mere exposure through an occasional half-hour assembly program does not satisfy this commitment.

While a decided commitment to environmental education by a school system is ideal, we recognize that some teachers may not have the flexibility to conduct creative and forward-looking curriculums at will. "AN EDUCATIONAL GUIDE FOR PLANNING AN IMPROVED HUMAN ENVIRONMENT" attempts to fulfill these divergent needs. It is envisioned that for some the Guide may represent a total environmental education program while for others it might be a helpful resource to augment other studies.

Learning experiences relating to environmental education are endless, limited only by the imagination and creativity of teachers and students. One of the real values of environmental education is its ability to couple or link many traditional subject areas with current, very pertinent units of study. Ideally, environmental learnings should be integrated within the various established curriculum areas. The units and areas of study emanating from the subjects of health, social studies, science, reading, current events, etc., all lend themselves to such integration.

Social studies units from such areas as consumer education, conservation, human resources, and modern urban problems would lend themselves to initiating discussion of the environmental health status of the community. The ongoing study of current events would obviously provide a meaningful introduction to this program, as well.

The science curriculum lends itself as another introductory point to environmental study through such areas as community health and sanitation, living things in their environment, seasonal changes, personal health and safety, pollution control, the decay process, and through a study of bacteria-caused infectious diseases.

An environmental health study would also be applicable to a health education and family-living curriculum. Studies of health practices, food and nutrition, disease prevention and control, family and community health, safety and first aid, heredity vs. environment, etc., all would be good points of introduction for this material.

Notice should be taken of the manner in which concepts such as "pollution" are handled. Activities pertaining to various forms of pollution should be interspersed throughout the curriculum. We believe that this is a more integrated way of gaining an understanding of the environment rather than singly to cover one form of pollution after another without showing relationships existing between them. After a cursory study is taken, then more in-depth involvement can follow in each pollution form.

1. For example, it is important for students to realize that open burning, be it done by a factory burning its wastes or by individuals burning their leaves, pollutes the air. If the open burning is done on a stream bank, a contribution will be made toward polluting the water, as well. Consequently, this is why solid waste disposal sites are regulated and licensed. In this way, citizen concern and governmental legislation protect the air from being further polluted as a result of burning and the water from being contaminated by leachate (chemical and/or bacteriological pollution of the water table due to drainage from a contaminated source).

2. Another example of an environmental interrelationship can be illustrated by trucks and cars which pollute the air due to faulty exhaust systems and motors in poor condition. In addition, these vehicles contribute to noise pollution through improper muffler design, road speed, and tire design.

3. Food spoilage, the solid waste problem, air pollution, rat and insect infestation, disease potential, etc., become very definitely interrelated when one folows the path a food item takes from the food processor to the garbage disposal site.

4. A jet airplane contributes to noise pollution. When many jet airplanes continuously go into and out of one particular place, such as an airport, not only is the noise decibel level raised for that vicinity but collectively the exhaust fumes emitted from the jet planes contribute substantially to lowering the air quality of the airport locale.

Thus, it is vital that in an environmental curriculum we treat the concept of "pollution" as a general condition comprising many interrelated parts. These various facets can then be researched in depth, but the overall "umbrella concept" of pollution or environmental decay should never by lost. In too many programs, the teaching is done in very narrow, segmented spheres and basic understandings are lost.

We are urging that teachers and students view environmental problems as having a direct bearing upon the general everyday physical and mental comfort of every individual person.

You, as an individual, are at the core of all political, social, and educational institutions in our environment. The key to understanding, and effectively solving, environmental problems, must be found within the individual person in our society. Only when each individual's health and comfort is taken into consideration will an environmental curriculum impart the sensitivity necessary for students to initiate positive environmental action.

These factors can be categorized from those which bear a direct relation to the everyday health and comfort of the person to whose which have a more obtuse effect upon him.

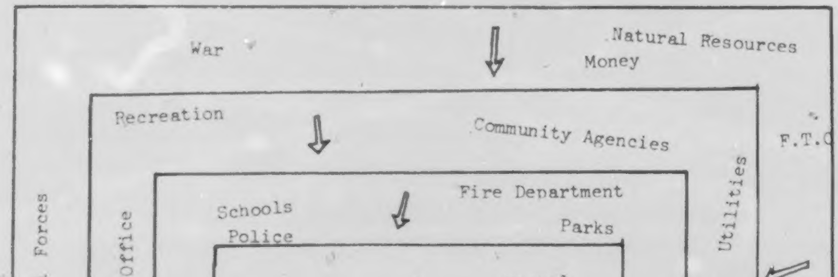
In his home, the individual comes into contact with such environmental factors as:

house structure and support
household air, noise, water, odor
food and food-borne disease, food spoilage
household insects and rats
fire
accidental home injury and poisoning
temperature
disease
potential lead poisoning
drugs
radiation exposure
hazardous toys and equipment
household pets, animal bites
visual stimuli
gas and electricity

As the individual's world expands to include his block and neighborhood, additional environmental factors such as solid waste storage and collection, roaming packs of dogs, vacant lots, littered streets, vacant and vandalized houses, weed control, air pollution, noise pollution, water pollution, accidental automobile and pedestrian injury, neighborhood rat problems, etc. become involved. It is at this level that the individual comes into contact with other individuals and the sociological and political factors influence environmental problems.

An individual's immediate neighborhood, when expanded to include his entire community or city, then begins to encompass additional environmental factors such as water supply, food and milk inspection, housing codes, municipal regulations, community agencies, recreation facilities, governmental institutions, etc.

As the concentricity enlarges beyond local schools, employment, and municipal facilities, additional political, legal, and social factors such as state and national government, political alliances, war, and conservation of natural resources help to achieve a homeostasis of the environment. A visual summary of this entire concept will follow:



War
Natural Resources
Money
Recreation
Community Agencies
F.T.C
Fire Department
Schools
Police
Parks
Utilities
Legal Forces
Post Office
Noise
Visual
Odor
Garbage
Water
Dogs
Radiation
Toys
Diseases
Rats
Temperature
Accidents
People
Electricity
Air
Space Travel
Inspections
Political Forces
Drugs
Insects
BODY
Gas
Fire
Moral Codes
Air
HOME
Autos
BLOCK
Garbage
Housing Codes
Shops
NEIGHBORHOOD
Noise
Hospitals
Employment
CITY
Water
City Services
Taxes
STATE
NATION
President of United States
Congress
INTERNATIONAL-U.N.

It is generally agreed upon that the process of education should bring about a change in behavior. Helping young people to become functional within "environmental concentricity", then, should become a major goal of the entire educational process. Through an enlightened curriculum highlighting the interrelationship of various environmental problems and their solutions, environmental perceptions will become so engrained in people that an educated change in behavior will result. The impact of such behavioral expansion will be felt first in the home, then on the block, in the neighborhood, community, city, state, region, and nation. Thus, the school has a mighty responsibility in becoming the vehicle for such enlightenment. It is hoped that the material presented in this Guide will help teachers to meet this challenge.

It is hoped that the philosophy and module set forth here represents underlying concepts and basic environmental recognition essential to any environmental education program. Applying problem-solving and research techniques to any of the specific areas would then yield specific understandings of the general concepts involved.

It has been our experience that the basic techniques of problem-solving help students to understand situations resulting from their interaction with the environment. These definitive problem-solving procedures could be applied to almost any given problem and help students to understand effective methods of initiating change within their immediate environment.

Underlying such a problem-solving approach, we have found that students discover truth in the following learning statements:

1. Applying problem-solving techniques to environmental problems provides a method for change.
2. There are definite problem-solving procedures.
3. The best way to bring about positive action is by planning definite steps which lead to that action.
4. We all use problem-solving techniques, sometimes without even realizing it.
5. Basic to methods of change and problem-solving, is recognition that a problem exists.
6. Carefully and specifically defining a problem often helps in arriving at its solution.

The chart on the following page is an example of the problem-solving process as well as of the appropriate action steps used to solve any environmental problem. These problem-solving techniques would be applicable to any environmental concern discussed in the classroom.

STEPS TO PROBLEM-SOLVING	APPLICATION
1. State the problem - Origin of problem - Past solution attempts	For example: 1. Litter on school grounds - -
2. Degradation or hazards to community - People or areas affected - Scope of problem	2. Unsightly, neighborhood decay, rats, etc. - -
3. Prevailing attitudes and habits of people regarding problem - Effect of attitudes and habits on problem - Evolution of attitudes and habits	3. Disinterest, indifferent, apathetic - -
4. Problem-solving objectives - Define short and long range changes - Time necessary to solve problem	4. Establish action program, prevent continuation of problem - -
5. Alternate solutions to solving problems - List potential solutions - Explore attainability of each solution - Select appropriate solution(s)	5. School campaign, class project - - -
6. Assess cooperation of community - Define persons sympathetic to problem - Effort needed to gather support - Acknowledge uncooperative persons - Explore persuasion needed	6. Class, school and/or community survey - - - -
7. Specific action needed for problem solving - What needs to be done - By whom - Material needed - Obstacles foreseen - Solution to obstacles	7. Clean-up week and maintenance - - - - -
8. Program evaluation	8. Before and after surveys, ongoing assessment

Another point to be stressed is that in this Guide, emphasis is placed upon the student and the change which he and his classmates themselves can affect. It is pure folly to think that true environmental change comes about by attacking "the giants" and not "the dwarfs". Individuals can improve conditions existing within their own grasp. A mammoth industrial complex or utility often becomes a target for citizens who wish to bring about environmental improvement. Such efforts are praiseworthy only if these citizens are also applying their philosophies at home, at school, at work, in their everyday living. Otherwise such efforts, however sincere they may be, are often little more than contributions of sweeping environmental faddism. Once interest in the project drops off, prospects of lasting environmental improvement also are dropped.

Consequently, as educators and environmentalists, we must try to encourage young people to improve environmental quality by altering their own living habits. For example, a single individual can affect a serious environmental problem through an act as mundane as storing his garbage in a satisfactory manner! This individual can help to minimize an entire neighborhood rat problem by taking such positive action and encouraging his neighbors to follow his example. However unglamorous such projects are as compared with those attacking "the giants", real environmental change comes from the collective efforts of individuals altering their own living habits. These efforts, together with legislative and enforcement measures, are those forces which will improve the quality of our environmental health.

It may be noted here that environmental health in this program should be defined as: The protection of community health and comfort through management of the environment. The altering or changing of unsatisfactory conditions associated with the residential home, school, and community environment is an inherent part of this program, as is the extension of this concept to include city-wide, county-wide, state-wide, and nation-wide environmental management. Only when nations positively and effectively co-operate in international environmental action, will true environmental improvement and management be lasting.

The activities which we suggest, therefore, lean strongly upon those which promote student attitudinal and behavioral change at home and at school in the local community. It is within this area of participation, be the involvement in rat control, noise abatement, consumer protection, or air pollution, that students in concert with their family, friends, neighbors, merchants, community workers, and elected officials can directly improve environmental quality and witness the changes that they, in co-operation with others, have helped to bring about.

When this occurs, students will understand this passage from Carl Sandburg's famous poem, "The Windy City",:

"It is wisdom to think the people are the city.
It is wisdom to think the city would fall to pieces
    and die and be dust in the wind
If the people of the city all move away and leave
    no people at all to watch and keep the city."

Thus, the value of such an environmental curriculum developed by educators and environmentalists, lies in its ability to have relevance to the existing school curriculum as well as to the daily lives of students. This becomes a valuable and meaningful effort when, as these young people mature and become part of the active community, these ideas, concepts, behavioral patterns, and energies can continue to be channeled constructively. Many environmental improvement dreams of today could then be brought to fruition while potential environmental problems could be identified and forestalled.

Consequently, although the payoff for our educational efforts may yet be a few years hence, it is our hope that we will be educating more informed citizens who will prove the cost-benefit worthwhile by addressing themselves to a more healthful and comfortable environment while, at the same time, making the education of today relevant and exciting.

Barbara J. Kohuth
Boyd T. Marsh

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RESOURCES

Only an informed people interacting with their environment can understand environmental interrelationships in order to preserve their environment and their quality of life.

UNIT PAGES

SOLID WASTE -

In the process of satisfying their needs, people produce solid wastes 13-20

SOUND (NOISE) -

Sound is a vital part of our existence 21-30

RADIATION -

Radiation is essential to air 31-38

AIR -

Clean air is essential to life 39-46

WATER -

Clean water is essential to life 47-54

SHELTER -

A good home environment is essential to life 55-58

CHEMICAL -

Chemicals are essential to life 59-66

RESOURCES

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	[illegible]	[illegible]	[illegible]	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS — AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	[illegible]	[illegible]	ALTERNATIVES

Through cooperative planning and action **PEOPLE CAN** meet basic needs while **PRESERVING THE QUALITY OF LIFE.**

LEARNING STATEMENTS

In the process of satisfying their needs, people produce solid wastes.

The manner in which society disposes of its solid wastes ultimately affects the quality of life.

The increase in population and the misuse of natural resources results in greater demand for a limited supply; hence, an ever increasing cost of living and a gradual decrease in the quality of life.

Solid waste disposal methods greatly influence water quality, air quality, and environmental sanitation levels.

Society uses many different methods for solid waste disposal.

"Sanitary Landfills" are an excellent method of reclaiming swamps, strip mines, and eroded areas.

Suitable landfill areas are not always available or are inaccessible.

With limited natural resources, people must "recycle" solid wastes whenever possible.

Some materials cannot be recycled.

Americans have been educated to be a disposable society.

To preserve the quality of life and, in effect, ensure our very survival society must learn to handle its solid wastes in an efficient, healthful manner.

LEARNING

In order to develop an understanding of the solid waste problem, students should research and discuss each of the following areas:

- -make-up of solid wastes
- -population density and solid waste disposal problems
- -methods of solid waste disposal
- -hazards of open-dumping
- -health aspects of solid waste disposal
- -concept of "recycling"
- -standard of living and solid waste
- -solid waste and natural resources

Trace the path a product and its packaging takes from its raw materials (natural and man-made) to manufacture, distribution, and solid waste disposal.

Trace the responsibility of solid waste removal as it pertains to the individual resident, local agencies, state agencies, and federal government.

Students to prepare an Inventory of the solid wastes disposed of during a one week period in each of their homes.

1. Categorize into cans, glass, aluminum, paper, plastic, waste food.
2. Weigh the total solid disposables each day, and at the end of the week calculate average amount produced per person in the family. (How close does this come to the estimated one ton per person per year?)

Class should trace their solid waste disposal to its final location.

1. How much is recycled?
2. How is the mass of it disposed?
3. What is the cost of such disposal? (Use figures from Inventory taken in the previous activity? Calculate on monthly and yearly basis.)

Photograph solid waste disposal in your community.

- -show various types of disposal methods
- -show various stages of each type
- -display and caption on posterboard

Collect pictorials to tell a story about the following topics. Students might each use pictorials to create different stories and explanations. (Contact public library for periodicals mentioned on reverse side of folder.)

1. "Bury It Or Burn It"
2. "Recycle That Old Chest Of Drawers!"
3. Dumps And Disease
4. Your Garbage Is Your Problem
5. Twenty Trees To Make One Ton Of Paper

ACTIVITIES

Take a Community Solid Waste Survey. (Consult folder insert)

1. What attitudes do citizens in our community have towards solid waste disposal?
2. Are citizens in our community willing to contribute more time, effort, and, perhaps, money to alleviate our solid waste problem?
3. How can we make citizens more aware of the solid waste problems in our community?

Contact the Division of Solid Waste Collection and Disposal of your local government. Students to describe their class research on the solid waste problem and seek to co-operate with local government goals.

1. Ask what local government is doing in seeking solutions to the situation?
2. What trends exist for the future?
3. How might the class work with the Division of Waste Disposal by conducting an educational campaign on solid waste in their neighborhood?

Pupils to contact the Vital Statistics Division of their local Health Department to find out the yearly birth rate for the last 10 - 15 years.

1. Taking their own calculated weight of solid waste per person in their family (use Inventory statistics), project how much solid waste will be produced each year by the new residents (birth rate) in the local community.
2. Make graphs to illustrate the above.

Role-play the following situations:

1. Beginning of solid waste disposal when Adam and Eve tossed away the apple core.
2. Archeological expedition which might occur 1000 years from now. (Discovery of cans, car hulks, coat hangers, etc. and conjecture about the society which produced such materials.)

Investigate the activities of the federal and state Environmental Protection Agency (E.P.A.) as they relate to solid waste disposal in your area. What other agencies or organizations are actively engaged in this field?

What are the health aspects of solid waste?

1. How can solid waste help to transmit disease? Which diseases?
2. Why do health officials recommend that garbage cans be stored on raised racks? Class may build racks and/or start neighborhood campaign for their usage. Photograph garbage storage areas before and after use of racks. Elicit feelings of pride one gets by maintaining property in a clean manner.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. AGENCIES TO CONTACT FOR SPEAKERS AND/OR INFORMATION:
    - a. City or County Division of Waste Collection and Disposal
    - b. Health Department
    - c. Recycling Council
2. FIELD TRIP SUGGESTIONS:
    - a. Solid Waste Disposal Site
    - b.
3. SOURCES FOR FREE MATERIALS:

a. Office of Solid Waste Management
U.S. Environmental Protection Agency
1835 K Street, N.W.
Washington, D.C. 20006

b. Glass Container Manufacturers Insti.
330 Madison Avenue
New York, N. Y. 10017
(Request classroom quantity of "Solid Waste Fact Book")

VOCABULARY

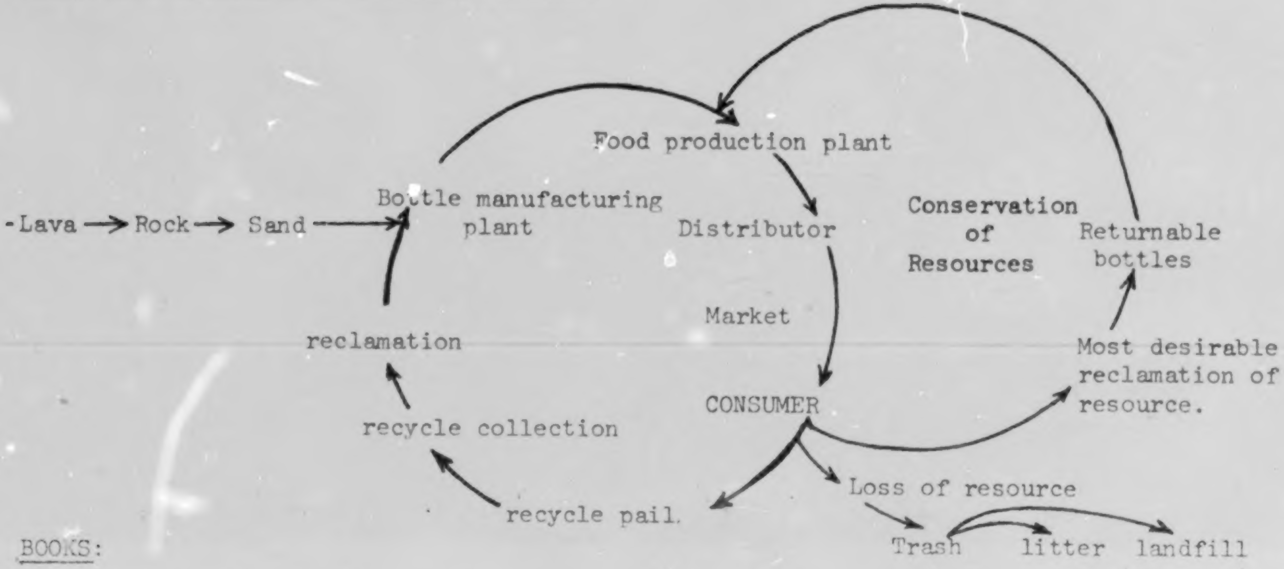
disposable
decomposition
solid waste
garbage
leachate
refuse
biodegradable
influent

effluent
sewer
sewage
compost file
compacting
recycling
strip-mining
composting

MATERIALS NEEDED

camera and film
survey forms
assortment of solid waste materials for mini land fill
shovel
18" ruler
wood in lengths designated on garbage stand rack plans
1/2 lb. penny nails in sizes designated
1 pint of paint

"MYSTERY TRIP" - LIFE OF A GRAIN OF SAND


Lava
Rock
Sand
Bottle manufacturing plant
Food production plant
Distributor
Market
CONSUMER
recycle pail.
recycle collection
reclamation
Conservation of Resources
Returnable bottles
Most desirable reclamation of resource.
Loss of resource
Trash
litter
landfill

BOOKS:

Hilton, Suzanne HOW DO THEY GET RID OF IT? Westminster c1970
Scientific research that has been done to curtail pollution and scrap.

Marshall, James GOING TO WASTE...WHERE WILL ALL THE GARBAGE GO? Coward McCann c1972
Methods of collecting, disposing and recycling solid wastes are described. Reader may be challenged to turn in his old newspapers when he learns that it takes 80,000 trees to make 2,000,000 copies of a New York City paper.

Small, William E. THIRD POLLUTION Praeger c1970
The growing national problem of solid waste disposal, and immediate need of government and individual effort to meet it. Difficult.

FILMS:

EARTH'S HUMAN SHORES (17 minutes - color)
The subject of this film is sewage disposal. ZIMPRO, INCORPORATED #4669

THE TROUBLE WITH TRASH (28 minutes - color)
Shows laboratories experimenting with self-destruct containers, balers for volume reduction, shredders for recycling waste as soil conditioners, incinerators with scrubbers to reduce air pollution. Also modern sanitary landfill techniques. (Available to 9th grades & higher) CATERPILLAR TRACTOR CO. #3838

PERIODICALS

"Solid Waste Management"
"Public Works"
"Waste Age"
"The American City"

BACKGROUND NOTES ON SOLID WASTE

Solid waste means such unwanted residual solid or semi-solid material as results from industrial, commercial, agricultural, and community operations, including earth or material from construction, mining, or demolition operations and slag and other substances which are not harmful to public health, and includes garbage, combustible and non-combustible materials, street dirt and debris.

COMMON SOLID WASTE DISPOSAL METHODS

Method	Description	Direct Cost A	Direct Cost B	Status
burning and dumping in the open	dumping and burning of refuse in the city dump	minimal		accounts to 45 percent of waste disposal but use is decreasing
incineration	burning of refuse in a furnace under control conditions	3000-10,000	3-8	fairly well accepted in large communities
composting	conversion of organic fraction to harmless products by microbial activity	4000-10,000	3-10	introduction contingent on salability of product
sanitary landfill	burial of refuse or processed residue under 1-2 feet of soil	1000-2000	1-2	accounts for 45 percent of waste disposal, especially in communities with access to land expanses
mine fill	hauling of refuse to and burial in abandoned mines		4-6	being introduced in large communities with access to abandoned mines
hog feeding	feeding of garbage to hogs	not relevant		largely discontinued as a consequence of sterilization requirements.
waste disposer	grinding of garbage in sink unit and disposal in sewers	not relevant		fairly popular in communities with sewer systems

PUBLIC HEALTH ASPECTS OF SOLID WASTE DISPOSAL

- Improper handling of refuse provides food for flies, cockroaches, and rodents; also breeding places for mosquitoes. All of these may transmit disease.
- Improperly designed and operated incinerators and burning dumps contribute to the air pollution problem.
- Water will become polluted by contact with deposited refuse.
- Many fire and home accidents are caused by poor refuse handling practices.

WHAT YOU CAN DO

- Deposit garbage and other refuse in proper and covered containers.
- Remove trash and unused vehicles from property.
- Provide enough garbage containers for all wastes.
- Provide proper storage for discarded items.

SOLID WASTE DISPOSAL EXPERIMENTS

1. To Detect: CAUSE-EFFECT RELATIONSHIPS IN REFUSE DISPOSAL

There are many ways of storing and of disposing of solid wastes. Each method creates environmental problems which must be solved. The following experiment is designed to stimulate problem-solving discussion. Attempt to correlate the students' findings with your community problem of solid waste disposal. The following may apply to household solid waste disposal, open dumps, landfills, incinerators, etc.

Environmental Problems: Improperly stored or disposed solid wastes tend to:

- permit rats and mice to feed and breed
- permit flies, mosquitoes and roaches to feed and breed
- attract dogs and cats which can bite small children, knock over trash cans, spill and spread contents allowing insect pests access to food wastes
- create safety hazards with broken glass and cans in playground areas
- become unsightly and attract further refuse disposal which make total pickup difficult
- prevent recycling of natural resources
- can become serious fire hazard
- emit foul odor when not picked up regularly
- can form a reservoir which permits insects to carry disease organisms into places where food is being prepared
- lower the quality of life in the neighborhood.

2. To Detect: INSECT BREEDING IN REFUSE

Materials:
3 mayonnaise jars
rubber band
leftover food scraps

Technique:

1. Take leftover food scraps from a meal and place in three mayonnaise jars. Place a piece of cloth over one jar and hold in place with a rubber band. Place a metal lid tightly over the second jar. Leave the third jar open to the air and leave uncovered. Place all three jars on the window-sill where they are exposed to sunlight and insects.
2. Observe each jar over a period of one week and make notes.
3. Compare the contents of each jar.
    - a. Which jar or jars permit insects (flies) to breed? Which jar or jars show signs of bacterial decay (foul odor)?
    - b. Can students relate how this may influence the spread of disease?
    - c. How can we significantly reduce insects getting into our home? (Clean up breeding grounds; good screening on windows and screen doors; self-closing screen doors; insecticides; fly swatters; insect tapes hung from ceilings; insect lamps.)

3. To Detect: EFFECTS OF SOLID WASTE DISPOSAL METHODS

Materials: Piece of bread; newspaper; bottle cap; plastic bag; paper tissue; coffee grounds; piece of banana; aluminum pull tab; piece of fat or scrap meat; toothpick; cigarette filter; cardboard container; wax-covered milk container; plastic cup; tin can lid; plastic button; piece of glass; gum wrapper and piece of chewing gum.

Technique: Secure a small patch of land on or near the school grounds and mark off three small plots with stakes and string. In the center of each plot, dig a hole 18 inches in diameter by 18 inches deep.

A. Refuse Disposal:

1. Place one of each item listed above in each of the three holes. After two weeks, record students' observation of each technique and compare.
2. Leave one hole uncovered to represent the "open dump" technique of refuse disposal. Make certain the string around this hole is high enough to prevent someone from falling accidentally into the hole during the experiment.
3. In the second hole, take a large piece of wood and compact the contents. This eliminates air space and permits more refuse to be disposed of in the same space. Cover the contents with 6 inches of soil and again compact. This represents what is known as the "Cut and Fill" method of solid refuse disposal. (Also termed "Sanitary Landfill")
4. In the third hole, place the refuse and do not compact. Then, cover the refuse with 6 inches of soil and again, do not compact.

B. Refuse Storage:

1. Prepare a storage rack for two trash cans using the "Do It Yourself" . . . "Build a Garbage Stand Rack" enclosed with this unit.
2. Get one trash can that has no holes or cracks in the sides or bottom and has a tight fitting lid. Line the can with a plastic trash can liner bag. Place the same contents in this bag that you did in each of the holes above. Place the lid tightly on the container. Observe over a period of two weeks.
3. In a second trash can that has holes or cracks in the sides or bottom and has a loose fitting lid, do not place any plastic trash can liner. Just place one of each of the items listed above and set the can down on the ground. Observe over the next two weeks. Record observations and compare with the trash can in Number 2 above.

COMMUNITY SOLID WASTE SURVEY FORM

1. Do you know what the term "solid waste" means?

Explain ______________________________

____

____

2. Do you consider solid waste disposal to be a problem in our community?

Explain ______________________________

____

____

3. What do you think happens to the solid waste which you dispose of in your garbage can?

Explain ______________________________

____

____

4. Do you separate or recycle any trash? __________

5. Do you purchase "returnables" or "non-returnables" bottles? __________

6. How often do you purchase T.V. dinners? __________

7. Do you have and use a garbage disposal unit? __________

8. Do you have and use a compactor? __________

9. Do you have and use an incinerator? __________

10. Do you feel that the solid waste disposal methods which presently serve you are adequate? __________ Inadequate? __________

Explain ______________________________

____

____

____

11. Would you be willing to pay increased taxes for better solid waste disposal in our community? __________

Explain ______________________________

____

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	**SOUND (NOISE)**	RADIATION	AIR	WATER	SUPPLY	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS. NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY - FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS — AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	[illegible]	[illegible] OF RESOURCES	[illegible]

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Sound is a vital part of our existence.

The manner in which sound is used affects the quality of life.

People use and/or produce a wide variety of sounds in their daily living.

Sound may be pleasant or unpleasant.

A sound which may be pleasant to one person may be unpleasant to another.

Each of us reacts to sound differently.

An unwanted or unpleasant sound may be referred to as "noise".

Noise may be called a "personal pollutant".

Noise is an environmental hazard which may be a pollutant to our environment.

Noise may affect our personal health.

Noise may affect us more at night than during the day.

Noise can be controlled.

A family can control noise through co-operation and discrimination in product purchases.

Industry can control noise both in factories and plants, and in the products they manufacture.

People must make a moral and financial commitment to control noise.

LEARNING

In order to develop an understanding of sound, students should research and discuss each of the following topics:

- -principles of sound
- -definition of noise
- -measurement of noise
- -sources of noise
- -uses of noise
- -human reaction to noise
- -noise and health
- -control of noise
- -economics of noise

A discussion on "noise pollution" should help students to think of environmental decay from a new perspective.

1. In what ways does noise lower environmental quality?
2. How is noise related to other forms of pollution? (i.e. cars and jet planes lower air quality as well as raise noise levels; improperly wrapped garbage necessitates trash collectors banging the cans against the trucks to empty garbage,thus,misshaping cans and aggravating rat problem.)

Creative Writing:

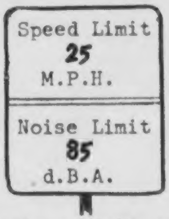
"My Nomination For The Noisiest Noise Award"

"The Noise That Made Me Jump a Mile"

1. What caused the noise?
2. How did you and those around you react?
3. How could the sound have been abated?

Interview a veterinarian or zoologist to find out how much noise can be tolerated by animals, birds, and fish. Is it more or less than man can tolerate? Does noise interfere with normal living activities of these animals?

Explain why streets of the future may have signs posted in this manner:



What other signs might one see?

ACTIVITIES

Depict by means of two contrasting murals noise levels of today as compared with those of 200 years ago. One should be able to conclude from the murals that noise levels increase as urbanization and labor-saving devices and living conveniences increase.

Describe by means of role-playing or through a mural, the following statement:

> "When sound leaves your neighbor's home and imposes itself upon you, noise becomes a community problem."

Interview the following people in relation to effects of noise:

1. Residents living near airport
2. Construction worker
3. Hospital spokesman
4. Audiologist
5. Librarian

NOISE ABATEMENT: How are sounds reduced in a city?

1. What legislation does your city or community have to control noise?
2. What specific measures are taken in industry? at airports?
3. How does the Occupational Safety Health Act (OSHA) protect workers?
4. How does carpeting and acoustical ceiling tile reduce sound?
5. Describe the difference between noise control from a design and engineering standpoint, and from an individual and personal standpoint?

Students might each choose a noisy product and write to the manufacturer to ascertain if decibel levels are being reduced.

Students to draw to soft-dreamy FM music. Collect papers. Then play 3 radios simultaneously each on a different rock and roll station. Students to draw again.

1. Compare drawings made to soothing music as those which were drawn to loud music. (Notice colors, subject-matter, intensity, neatness.)
2. What conclusions can be drawn?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

CONTACT THE FOLLOWING SOURCES:

1. U.S. Dept. of Housing and Urban Development
2. NASA
3. Environmental Protection Agency
4. Department of Public Health and Welfare
5. U.S. Dept. of Labor
6. Federal Aviation Association
7. Engineering Associations Or Institutes
8. Manufacturers Of Noise Measuring Instruments

VOCABULARY

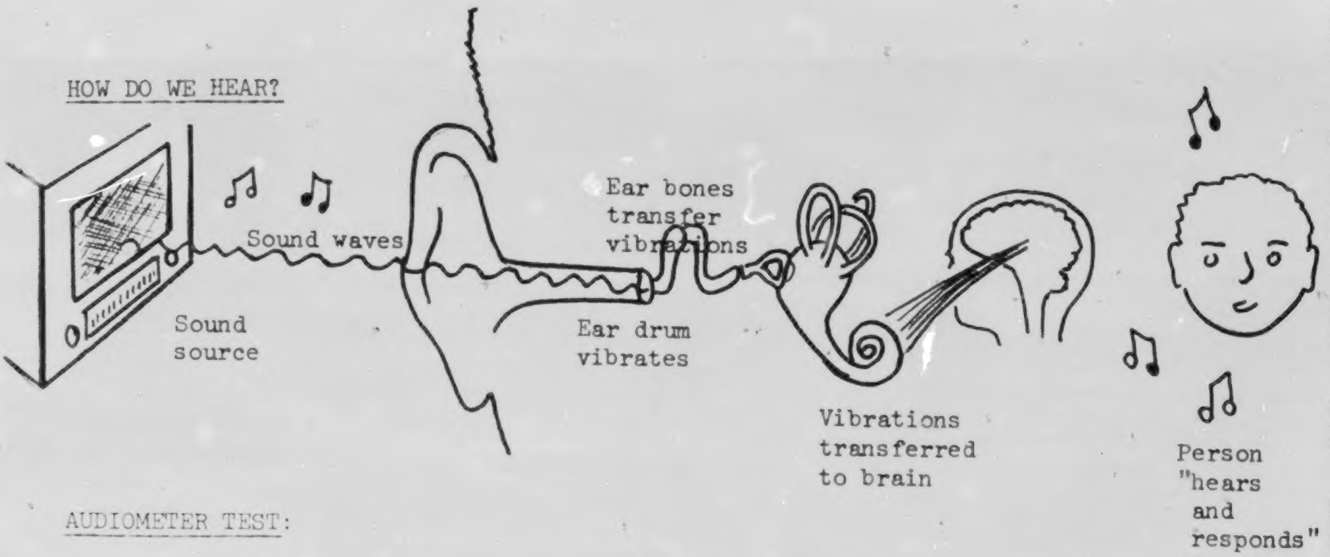
sound
sound wave
noise
"personal pollutant"
noise levels
noise pollution
noise abatement
sound-proof
decibel (db)
ambient noise
occupational noise
acoustics
audiometer test
sonic boom
audible
hearing loss
"threshold of pain"
noise ordinance
sound suppression
sound absorption
pitch
sonar

MATERIALS NEEDED

Survey forms (consult insert)
Items or situations for noise evaluation (i.e. radio, symbols, record player, classroom bell, honking horn, etc.)
Tuning forks
Retractable ball point pen
Specific materials for experiment as listed on folder insert.

Writing and Art supplies
3 FM radios
Magazine pictures
Earmuffs and earplugs

HOW DO WE HEAR?


Sound waves
Sound source
Ear bones transfer vibrations
Ear drum vibrates
Vibrations transferred to brain
Person "hears and responds"

AUDIOMETER TEST:

Invite to class the school nurse or a speech and hearing specialist to give each student a hearing test. What correlations might be made with these test results and with the subjective noise evaluation surveys completed by his student? (Refer to insert.)

HIGH FREQUENCY EXPERIMENT:

Using a set of tuning forks, students can determine who in the class is able to hear high-frequency pitched sounds. Do the audiometer test results confirm these findings?

1. What is the difference between "high frequency" and "high fidelity"?
2. If a person cannot hear high fidelity sounds, should he still purchase a hi-fi set?

QUOTE TO THINK ABOUT AND DISCUSS:

"The psychiatric distress that comes of living a cubical life in a human honeycomb is overlooked by municipal authorities... Doctors responsible for a community's mental health are not asked what they think of contemporary apartment buildings that are built without soundproofing -- much less are they given a chance to condemn them."

Edward Higbee, Ph.D., Geographer, University of Rhode Island

BOOKS:

Jones, Claire & others POLLUTION: THE NOISE WE HEAR Lerner c1972
Sources of noise and efforts to curb them; noise as danger to physical and emotional health, to living and inanimate things.

Navarra, John G. OUR NOISE WORLD Doubleday c1969
Hums, hisses, rumbles, pops, clicks and sounds beyond description pollute the atmosphere.

FILM:

TO CONSERVE AND PROTECT (14 1/2 minutes - color)
As narrator James Mason says: "Noise pollution, if allowed to go unchecked will rob millions of us of our God-given gift - the ability to hear." This important film covers the different aspects of noise-pollution - its causes, bad effects on human beings, and what can and must be done to conserve and protect our precious ability to hear.

BACKGROUND NOTES ON NOISE

I. NOISE AND ITS EFFECTS UPON US:

Sound moves through the air somewhat like waves move in the ocean. While so vital a part of our existence, sound is growing to such disagreeable proportions within our environment that today it is a very real threat to our physical and mental health. As our environment becomes more and more crowded with sound waves, the harmful effects of unwanted sound are beginning to be documented.

According to a study by the University of Wisconsin Department of Environmental Design, noise in the home, particularly, can contribute to, among other things, a breakdown in family communications, depression, short attention span, hyperactivity in children, and even family discord.

Dr. Samuel Rosen, a New York otologist who pioneered in noise research in the early sixties, established that prolonged exposure to excessive noise not only can cause progressive hearing loss but also has a measurable effect upon the circulatory system causing constriction of the arteries, increased rate of heartbeat, and increased flow of adrenalin into the blood stream. Since these initial findings were published, further research has not only confirmed Dr. Rosen's data but has extended it to include damage to unborn children as well as detrimental effects upon the nervous, endocrine, and reproductive systems of adults (Dr. Chauncey Leake, University of California, San Francisco).

Some public health officials rate hearing damage as America's number one non-fatal health problem. Estimates indicate that approximately 20 million Americans suffer from total or partial hearing loss. An estimated one out of four people are exposed to noise levels which can lead to further damage. An estimated 7,000,000 industrial workers have the highest potential for noise-induced hearing loss but many more millions of people are threatened daily by the complex of community noises with effects ranging from mild annoyance to interference with sleep.

II. MAJOR SOURCES OF OUTDOOR NOISE: roadway traffic, trash collection, aircraft flyovers, construction-demolition operations, children at play, signalling devices (sirens, bells, and horns), etc.

III. MAJOR SOURCES OF INDOOR NOISE: garbage grinders, plumbing, entertainment (TV, radios, phonographs), loud conversation, running, power tools, vacuum cleaners, indoor industrial machinery.

IV. BENEFICIAL USES OF SOUND: entertainment, warning devices, sound therapy, communications, pest control.

V. MEASUREMENT OF SOUND:

The quantitative scale for measuring sound and noise intensity is by decibels. Zero on the Decibel Scale is based upon the lowest sound level that the healthy, unimpaired human ear can detect. Decibels are not linear units like miles or pounds. Rather, they are representative points on a sharply rising curve. Thus, while 10 decibels is 10 times more intense than one decibel, 20 decibels is 100 times more intense (10 x 10), 30 decibels is 1,000 times more intense (10 x 10 x 10), etc. One hundred decibels, consequently, is 10 billion times as intense as one decibel.

VI. FACTORS TO BE CONSIDERED IN NOISE EVALUATION:

A. **Distance** - from sound-emitting source to receiver (double the distance, sound intensity reduced by one quarter)
B. **Intensity** - (loudness) of sound
C. **Frequency** - (pitch) of sound
D. **Speed** - of sound in various media
E. **Combinations** - of sounds
F. **Repetitiveness** - of sound

VII. ABATEMENT OF SOUND:

A. Coping with noise problems
   1. Surround the noise source with sound-absorbing material.
   2. Surround people who would be disburbed by the noise with sound-absorbing material.
   3. Install a sound suppression device between the people and the noise source.

B. Action Steps

Collective Action

- legislation - "noise ordinances"
- industrial co-operation in the redesign and manufacture of products
- acoustical design of interiors by architects and builders
- mufflers, silencers, and barriers industrial machinery
- mass transit to reduce number of vehicles on road
- re-routing of aircraft flight patterns

Individual Action

- complaint
- consumer power (purchase of quieter products; refusal to purchase property in noisy areas)
- mufflers and silencers
- sound-absorbing materials
- ear protectors (ear muffs, ear plugs)

ADDITIONAL LEARNING ACTIVITIES

What is a "SONIC BOOM?"? (Write to NASA for information.)

Invite a psychologist or psychiatrist to class to discuss the psychological effects of noise upon people.
1. Relate to tension, depression, suicide.
2. What changes might we make in our daily living to accommodate for these effects?

Would a person in a sound-proof room hear anything? (Sounds within own body)
1. How does a fetus react to sounds within mother's body?
2. How important is sound to babies?

Conduct and record observations to agree or disagree with the following statement:

> "People, themselves, are quieter when there is less noise in their immediate environment."

How is noise used for beneficial purposes?
1. Contact local Naval Reserve Unit for information on use of underwater SONAR for detection of submarines, fish, sea depth, etc.
2. Interview a dentist to learn how some sounds distract his patients while others irritate them.
3. How do you react when you hear an alarm or siren?
4. How is sound used for communication? entertainment?
5. In what ways is sound used in pest control of birds?
6. How can the same type sound be used differently depending upon its intensity (loudness) and its frequency (rate)?

TO RESEARCH:
Is it true that in wintertime, deer already in a weakened condition in the forest, are frightened and may even die when abruptly disturbed by a loud snowmobile?

The following activities will give students the responsibility of examining and evaluating the sounds around them. Correlations should be made in terms of the interrelated noise problems and the hearing ability of each student. If possible, a decibel level meter should be sought to quantitatively substantiate findings.

IN-CLASS NOISE EVALUATION

A. Using 15 noise-producing items, one by one, students should individually evaluate each according to the following classifications: Just Audible, Quiet, Moderately Loud, Very Loud, Uncomfortably Loud, Deafening.
B. Tabulate and compare results.
C. Using a constant noise source such as a clicking ball point pen, ticking clock, etc., students should measure the distance at which they no longer can hear the source.
D. What conclusions can be drawn as a result of the tabulations of activities A and C? How might an audiometer test be helpful here?

HOME NOISE EVALUATION

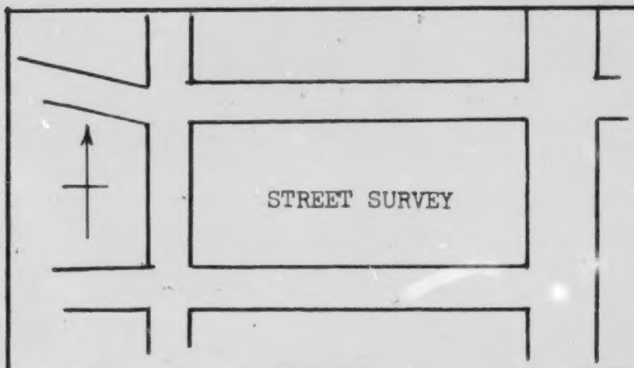
A. Students should each conduct the following survey in their ow[illegible]omes. Completion of survey together with parents might make a good family project and initiate co-operation in lowering household noise levels.
B. Tabulate individual surveys and compare results.
C. What types of individual differences might affect the data? (physical capacity to hear noise, degree of noise sensitivity through conditioning)

NOISE EVALUATION ACTIVITIES

	Just Audible	Quiet	Moderately Loud	Very Loud	Uncomfortably Loud	Deafening
KITCHEN						
FAN						
DISPOSAL						
REFRIGERATOR						
BLENDER						
DISHWASHER						
LIVING ROOM						
CONVERSATION						
RADIO; TV						
FAMILY SOUNDS						
PIANO						
OTHER						
BASEMENT/GARAGE						
WASHER						
WASHER						
DRYER						
ELECTRICAL TOOLS						
LAWN MOWER						
CAR HORN						
OTHER						
GENERAL HOUSEHOLD SOUNDS						
FOOTSTEPS						
VACUUM CLEANER						
TELEPHONE						
HEATING SYSTEM						
SHOWER						
PLUMBING SYSTEM						
OUTDOOR SOUNDS						
AIR CONDITIONER						
OTHER						

COMMUNITY NOISE EVALUATION

A. Students should each use the following survey form and individually and collectively in committees evaluate the sound quality of their community. Two sets of survey forms might be completed - one in a residential area and one in a heavily traveled business or commercial area.
B. Tabulate and compare results.
C. What generalizations might be made? (For example, are the readings louder or softer near main streets? etc.)
D. What factors contributed to loud noise?



TIME ______________________ A.M. or P.M.

TEMPERATURE ______________________ Degrees

WIND SPEED ______________________ M.P.H.

WIND DIRECTION ______________________

TYPE OF STREET: _____ MAIN _____ SIDE

TRAFFIC VOLUME: ☐ Infrequent ☐ Frequent ☐ Continual

CHARACTER OF NEIGHBORHOOD: ☐ 1 or 2 Family Houses ☐ Mixture of Private House and Apartment Houses ☐ Mainly Apartment Buildings ☐ Mixture of Residential and Commercial or Business Uses ☐ Industrial ☐

ADJACENT OR NEARBY LAND USES: ☐ Freeways ☐ Industry ☐ Airport ☐ Railroad Tracks ☐ Parks ☐ Cemetery ☐ Commercial or Business

	Quiet	Moderately Loud	Very Loud	Deafening
NOISES HEARD				
NORMAL TRAFFIC				
BUSES/TRUCKS				
ROAD REPAIR				
BUILDING CONSTRUCTION				
AIRCRAFT				
TRAIN				
SIRENS				
LAWN MOWERS/POWER				
CHILDREN				
OTHER				

HEALTH DEPARTMENT NOISE SURVEY RESULTS

The Cleveland Department of Public Health and Welfare, Environmental Health Services, conducted a noise survey evaluating sounds heard in various locales of the city. The following Table lists the survey results as measured in decibels on the dBA scale. What correlations can be drawn between these survey results and those completed by the class?

NOISE SURVEY RESULTS

Area Type	Range	Sample Size	Mean	Std. Dev.
Residential	43 - 72	52	56.1	6.2
Main Street	54 - 72	16	59.9	6.7
Side Street	43 - 68	36	54.4	5.4
Commercial	45 - 75	73	62.4	6.6
Main Street	57 - 75	32	66.4	4.4
Side Street	45 - 72	41	59.2	7.0
Heavy Industry	62 - 72	6	66.0	4.0
Main Street	65 - 72	3	69.0	-
Side Street	62 - 64	3	63.0	-
Light Industry	48 - 79	37	58.9	6.7
Main Street	59 - 67	6	63.8	3.7
Side Street	48 - 79	31	57.9	7.3
Near Freeways	54 - 76	27	64.9	4.6
Main Street	63 - 76	7	68.1	5.0
Side Street	54 - 76	20	63.8	3.7
Construction	70 - 78	5	73.2	-
Road Repair	69 - 83	6	76.2	-
Garbage Trucks	72 - 79	5	75.6	-

EXPERIMENT: A QUANTITATIVE DEMONSTRATION OF RELATIVE SOUND AMPLITUDES

EQUIPMENT NEEDED: microphone
high fidelity audio amplifier
co-axial cable
oscilloscope

PROCEDURE:
1. Connect microphone to amplifier; output of audio amplifier to the Y axis, input of the oscilloscope
2. While one student reads, talks, or sings into the microphone, a second student should record the height (amplitude of the signal seen on the oscilloscope.)
3. Continue procedure with recordings of 2 students reading, talking, or singing simultaneously, 5 students, 10, 20, etc.
4. Repeat procedure using whispers, shouts, music, etc.

INTERPRETATION: Relate oscilloscope amplitudes to the Decibel Level Chart.

DECIBEL LEVEL CHART OF TYPICAL NOISES AND REACTIONS

Sound Level In Decibels (dBA Scale) Quantitative Scale	Sound Source at Typical Levels at Usual Distances	Subjective Effect Qualitative Effect	Community Reaction	Other
140	Exploding firecrackers Siren Standing near jet plane tail	Threshold of Pain	↑	↑
130	Hearing shotgun blast Thunder	Uncomfortably Loud	VIGOROUS ACTION	
120	Cheer of a crowd Amplified rock music Pneumatic jackhammer		↓	INCREASING RISK OF HEARING DAMAGE
110	Riveting machine (at operator position) Large circular saw			↓
100	Farm tractor Power lawn mower Motorcycle Large cocktail party	Very Loud	THREATS ↕	
90	Subway train Aircraft low flyover			↑ INCREASE IN ANNOYANCE
80	Diesel truck Crowded restaurant Inside sportscar	Moderately Loud	WIDESPREAD COMPLAINTS	↓
60	Window air conditioner Freeway traffic Light traffic		OCCASIONAL COMPLAINTS	↑
40	Normal conversation Bird singing	Quiet	NO NOTICEABLE ACTION	MILD RECOGNITION
20	Rustle of leaves Dripping faucet	Very Quiet		
10	"Silence"	Just Audible	↓	↓

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	**RADIATION**	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS. NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY - [illegible] HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS. ISOLATIONISM	LAWS - AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS. DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Radiation is essential to life.

The sun is the biggest transmitter of radiation to Earth.

The sun's radiation warms the Earth and allows life to exist on this planet.

Without the sun's radiation, it is believed that Earth would be void of life.

The Earth's atmosphere acts as a shield to the sun's harmful radiation.

A large portion of the radiation transmitted by the sun is known as "visible light".

Visible light is just one form of radiation.

Radiowaves, x-rays, microwaves, laser beams, infra-red rays, and ultra-violet rays are other forms of radiation which people have put to medical and commercial use.

Our environment and the people in it can be affected both positively and negatively by radiation.

Radiation can help or do damage to living things in our environment.

At the present time, scientists, conservationists, and industrialists have not conclusively agreed upon the various dangers possible from radiation, notably those associated with nuclear power plants.

People can, in certain circumstances, control the damage which radiation does to their environment.

LEARNING

In order to develop an understanding of the necessity for wisely using and controlling radiation, students should research and discuss each of the following topics:

- -discovery of radium by the Curies
- -various forms of radiation
- -uses of radiation
- -hazards of radiation
- -health, financial, and environmental costs of radiation hazards
- -methods of radiation control
- -standard of living and radiation control
- - radiation control and natural resources

Discuss the meanings of radiation and radioactivity.

1. Visually demonstrate how light radiation is converted into energy by placing a radiometer on a sunny window or in the path of light from a flashlight. Observe the rotational energy of the vanes with varying degrees of radiation exposure.
2. Invite to class a geologist or geology student to demonstrate with a geiger counter the radioactivity present in various materials (uranium, pottery, old luminous watch dials, air).

Students might investigate ways in which radiation causes changes in living things.

1. Obtain and grow seeds which have been exposed to different levels of radiation. How is growth affected?
2. How is radiation used to help cancer patients? (Radiation from cobalt treatments destroy unwanted cancerous tissue.)
3. Why is there presently such a controversy regarding nuclear power plants? What various arguments are presented? What is the possible relationship between nuclear reactors and thermal pollution, and thermal pollution and aquatic life?

INDUSTRY

- laser beams used for precision machining and cutting
- laser beams used in land surveying
- laser beams used to set creases in permanently pressed clothing
- microwaves used for drying (i.e. potato chips go through huge microwave ovens)
- microwaves used in television industry to connect station with transmitting antenna
- florescent light bulbs produce ultra-violet radiation which is converted into visible light by phosphorus lining the inside of florescent light bulbs
- ionizing radiation used in checking airport baggage in an effort to thwart hijacking
- laser beams used in tele-communications such as Telstar
- ionizing radiation used in measuring thickness of steel, cigarette firmness, etc.
- ionizing radiation (krypton) used to illuminate railroad switch lamps
- ionizing radiation (tritium) used as a power source in flashlights
- ionizing radiation used in nuclear power plants
- ionizing radiation used to check for flaws in machinery, tires, etc.
- ionizing radiation used in sterilization of foods and drugs

MATERIALS NEEDED

radiometer (obtain from hobby shop or scientific supply house or consult Thomas Register of Products for supply source)
geiger counter
lead cape
seeds exposed to radiation (Turtox, Chicago)
portable radio
grounded metal box
writing and drawing supplies

People can, in certain circumstances, make radiation work for them or against them.

By far, the greatest influence of radiation is positive.

People should not disturb the balance between natural radiation (i.e. that radiation initially received from the sun) and life on Earth.

People must environmentally manage the manufacture and use of radiation.

Society must make a moral and financial commitment to contructively use and control radiation in order to preserve the quality of life and ensure their survival.

How can man SHIELD himself from unwanted doses of radiation?

1. How do clothing, suntan lotion, and sunglasses shield you from radiation?
2. What is a "lead cape"? Why is it used?
3. What are "fall-out shelters"? Why is nuclear warfare so dreaded?
4. What hazards do microwave ovens present?
5. What health effects may result if man is not shielded from excessive doses of radiation?

EXPERIMENT: Demonstrate how a portable radio can be SHIELDED from receiving radio waves by placing it in a completely enclosed and grounded metal box.

Write to the Atomic Energy Commission.

1. How does this agency work to protect you?
2. How do your local health department and E. P. A. help to control your exposure to radiation?

ACTIVITIES

Students to discuss ways in which radiation and its various applications affect themselves. A class list can be compiled, pictures or drawings collected, interviews made, letters written, and other activities engaged in to illustrate the following radiation applications.

HOME AND NEIGHBORHOOD

- -radiation from sun's rays tan or burn skin
- -background radiation always in the air
- -radiation from sun (or substitute source) for plant growth in gardens
- -solar energy used in heating
- -microwaves in home microwave ovens
- -radio-frequency waves (V.H.F. or U.H.F.) in color T.V. sets
- -ultra-violet rays used in sun-lamps
- -infra-red radiation used in stoves for cooking
- -microwaves used in radar to detect speeding vehicles
- -radio-frequency waves (V.H.F.) used in radio-receivers with portable transmitters for remote control electronic garage door operation

MEDICAL FACILITIES

- -ionizing radiation used in dental x-ray machines
- -ionizing radiation used in medical x-rays
- -ionizing radiation used in fluoroscopes
- -radioactive isotopes used in patient treatment and diagnosis
- -ultra-violet rays used in germicidal lamps to kill bacteria
- -ionizing radiation used in heart pacemakers

MILITARY

- -microwaves used (in radar) to detect enemy planes
- -laser beams used for accuracy in firing missiles and large guns
- -infra-red radiation used in sniper scopes to illuminate enemy targets at night
- -microwaves used in aviation (radar) control
- -microwaves used in weather (radar) prediction
- -nuclear radiation applied to nuclear weapons

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. PEOPLE TO CONTACT:
   - a. Geologist:
   - b. Physicist:
   - c. Doctor:
   - d. Dentist:
   - e. H. S. Physics Teacher:
   - f. X-Ray Technologist:
   - g. Physician:
   - h. Local Health Dept.:
   - i. Sierra Club:
   - j. Power Company:
2. FIELD TRIP IDEAS:
   - a. Nuclear Medicine Laboratory
   - b. Police Dept. Radar Speed Monitor
   - c. School, Industry, or Home with Microwave Oven
   - d. Doctor's, Dentist's, or Hospital's X-Ray Office or Laboratory
   - e. Physics Laboratory

VOCABULARY

RADIATION may be defined as the process by which energy is transmitted through space from an emitting body to a receiving body.

RADIOACTIVITY occurs when a substance, generally containing a nuclear isotope, emits either nuclear particles or very high energy light rays (gamma rays).

OTHER WORDS:

nuclear power
nuclear energy
nuclear medicine
thermal pollution
"lead cape"
radioactive wastes
fallout shelter

FILMS:

NUCLEAR RADIATION - FALLOUT (15 minutes - color - P.L.)
Radioactive fallout is discussed - as it occurs in nature and man-made variety. Describes the types of radiation involved, how such radiation spreads and how it affects living matter, and explains what is being done to understand and solve the problems associated with nuclear radiation.

NUCLEAR RADIATION - OUTER SPACE (17 minutes - color - P.L.)
A discussion of the series of radiation belts that surround the earth and their effect upon planned space explorations.

RADIANT ENERGY AND THE ELECTROMAGNETIC SPECTRUM (11 minutes - color - S.L.)
Reenacted experiments of discovery and modern sensing devices introduce us to the various forms of radiant energy, giving insight into concepts of waves, wave-lengt and energy. Sources and uses of radio waves, micro-waves, infra-red waves, light waves, ultra-violet waves, X-rays and gamma rays are included.

RADIOACTIVE FALLOUT AND SHELTER (28 minutes - color - P.L.)
A simplified presentation on the complicated subject of radioactive fallout. The film discusses some of the effects of radiation on people and emphasizes protective procedures against radiation.

RADIOACTIVITY (13 minutes - S.L.)
This film describes the characteristics of alpha, beta and gamma radiation and the instruments and methods by which they may be detected.

TAKING THE X OUT OF X-RAYS (8 minutes - S.L.)
This film, turning back for a glimpse of the original discovery, traces the develo ment of x-ray up to modern times and includes a review of its current applications

APPROPRIATE BOOKS:

Halacy, Daniel S. X-RAYS AND GAMMA RAYS Holiday House c1969
A detailed account of the discovery of X and gamma rays and a description of their uses especially in medicine. Contains a chapter on experiments; index and glossar also helpful.

Jones, Claire & others POLLUTION: THE DANGEROUS ATOM Lerner c197
Emphasis upon the disasterous results of radiation upon living things, nuclear energy potential for peacetime use and pollution hazard during the industrial process, and the need for greater controls.

Mawson, Colin A. THE STORY OF RADIOACTIVITY Prentice Hall c1969
The facts about radioactivity are presented with simplicity and scientific accurac It stresses the peace time uses of these radio-active elements in medicine, agriculture and industry. A glossary of terms and comprehensive index are helpful.

Polking, Kirk LET'S GO TO AN ATOMIC ENERGY TOWN Putnam c196
An elementary but helpful explanation of the uses of atomic energy in science and industry. For example, its uses in the medical profession. Includes a glossary.

SOURCES FOR RADIOLOGICAL INFORMATION:

1. Bureau of Radiological Health
Food and Drug Administration
U. S. Dept. of Health, Education, and Welfare
Rockville, Maryland

2. Atomic Energy Commission
Division of Technical Informatio
Washington, D.C. 20545

BACKGROUND NOTES ON RADIATION

We have been and will continue to be exposed to radiation from the sun and from naturally occuring radioactive elements from around us.

This radiation is known as background radiation. Man has reached his present state of development in the presence of this radiation; it is an amount with which he can live compatibly.

Today, background radiation is an insignificant source of exposure compared to man-made sources of ionizing radiation given off by x-ray, fluoroscope, color T.V. and man-made radioactive materials. In addition, there is the problem of non-ionizing radiation which is given off by lasers, radar and microwave ovens.

I. TYPES OF RADIATION

There are two basic types of radiation: ionizing and non-ionizing.

A. Ionizing Radiation is that type of radiation which has the capability of changing the chemical structure of atoms and molecules. This potent capability can help man (i.e. destroy cancerous tissue) while uncontrolled use can harm man.

B. Non-Ionizing Radiation, while it is less potent than ionizing radiation in that it does not have the capability of changing chemical structure of atoms and molecules, can also help man (i.e. reattaching detached retinas by use of a laser beam) while misuse can harm man (i.e. cataracts caused by undue exposure to microwave radiation).

II. BENEFITS OF RADIATION - Consult Folder Learning Activities

III. HEALTH HAZARDS OF RADIATION

After a large acute dose of radiation, reactions may appear within a few hours consisting of nausea, radiation burns, changes in the blood, disorders of the intestines and central nervous system.

Small doses of radiation over a long period of time could cause genetic damage. This is cumulative, damaging chromosomes or parts of cells responsible for transmitting characteristics from generation to generation. Damaging effects may show up in future generations as mutations.

Exposure to radiation can cause cataracts, cancer, leukemia, or shorten one's life.

Studies have shown that irradiated individuals have demonstrated the carcinogenic properties of radiation.

Radiologists showed a greater incidence of leukemia than physicians who do not use radiation.

Lung cancer was highly prevalent among miners who inhaled large quantities of airborne radioactive materials.

Heavily irradiated survivors of Hiroshima, show increased incidence of cataracts, leukemia and thyroid cancer.

Dentists were found with skin cancer of the fingers if they repeatedly held the film in the patient's mouth while taking x-rays.

Immature, undifferentiated, and rapidly dividing cells are highly sensitive to radiation; therefore, exposure to radiation should be avoided by pregnant women.

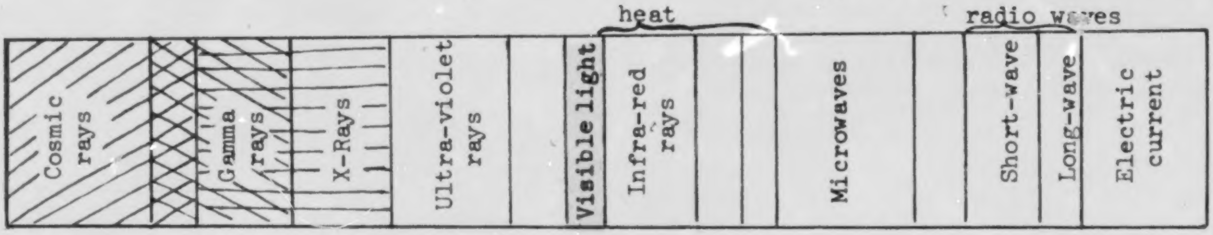
IV. PROTECTION FROM RADIATION

Federal, state, and local health agencies, recognizing the potential hazards of radiation exposure, adopted certain regulations regarding manufacture, installation and use of radiation-generating equipment and materials.

Ohio's Radiation Protection Regulation and Standards became effective on July 1, 1969. They required all sources of radiation to be registered every two years with the Ohio Department of Health.

Cleveland's Health Department has a radiation protection program.

THE ELECTROMAGNETIC SPECTRUM


heat
radio waves
Cosmic rays
Gamma rays
X-Rays
Ultra-violet rays
Visible light
Infra-red rays
Microwaves
Short-wave
Long-wave
Electric current

SOURCES FOR SCIENCE MATERIALS which would help to demonstrate principles of radiation:

1. Stanzi Scientific Company
   1231 North Honore Street
   Chicago, Illinois 60622

2. Sargent-Welch Scientific Company
   9520 Midwest
   Cleveland, Ohio 44125

3. Contact your high school physics department for help with this topic. Materials such as x-ray tubes, fluorescence effect tubes, radioisotopes, radioactive materials, small microwave generators, ionizing radiation-detection equipment, etc. might be available for demonstration purposes.

SURVEY

RADIATION USAGE IN OUR COMMUNITY			
HOME AND NEIGHBORHOOD	MEDICAL FACILITIES	INDUSTRY	OTHER

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	[illegible]	[illegible]	AIR	WATER	[illegible]	[illegible]

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS — AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES, LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	[illegible] ECONOMICS OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Clean air is essential to life.

The manner in which people dispose of their gaseous wastes ultimately effects the quality of life.

The geographic location and industrial makeup of a city as well as its people affect the AIR QUALITY of the region.

Air pollution is produced by natural and man-made activities.

Air pollution produced in one region can affect other regions in the "air shed".

Nature recycles air to a limited degree.

People pay for air pollution in loss of health, property and supporting natural resources.

Certain air pollutants cause more demage than others.

People must either control their activities or produce and use effective anti-pollution technology.

Society must make a moral and financial commitment to preserve the quality of air to ensure its survival.

LEARNING

In order to develop an understanding of the necessity for maintaining clean, "potable" air, students should research and discuss each of the following topics:

- advantages and importance of clean air
- makeup of clean air
- contaminants to clean air
- sources of contaminants
- population and industrial density and air pollution
- health and financial aspects of air pollution
- methods of air pollution control
- standard of living and air quality
- air quality and natural resources

Students to investigate the air pollution problems of such areas as: Los Angeles; New York City; Donora, Penna.; Phoenix, Arizona; Meuse River Valley, Belgium.

1. What do these areas have in common?
2. How do these areas differ?
3. Compare these findings with the air pollution problems of the areas.

Interview city and industrial leaders to determine what is being done locally regarding air pollution control.

Contact the air pollution control agency in your city.

1. Are daily air quality samples taken and reported in an "air quality index"? What do the figures represent? What is an "air alert"? What happens?
2. Request from the agency a few used filters from air monitoring stations. Compare these filters with new and used cigarette filters, filters from home furnaces, humidifiers, and air conditioners. What story can be told from the filters?

Compare statistics from Health Dept. or Coroner's Office on respiratory disease rates and deaths due to respiratory diseases with high and low air pollution index days or weeks in your region.

Students may wish to collect national air sampling data from the U.S. Public Health Service. Plot on maps air flow and pollution distribution on a national scale. Show how the distribution changes dramatically through the year as the season and climate changes.

ABATEMENT

1. What does the "CLEAN AIR ACT" call for?
2. What standards and laws exist?
3. What methods of enforcement are used?
4. How much does air pollution abatement cost your family? Research with manufacturers how anti-pollution devices have raised the cost of producing needed products, i.e. power, cars, etc.

ACTIVITIES

How can we see or feel the effects of air pollution? Collect newspaper stories to illustrate.

1. Human Health - Invite to class a physician a/o epidemiologist to discuss the minor health discomforts, chronic diseases, accidental injury rates, and acute episodes attributed to the effects of air pollution.
2. Animal Health - A veterinarian could shed light upon the effects of air pollution upon animals. (In addition to direct health damages, discuss the special menace which fluorides present to such animals as cattle and sheep, by contaminating alfalfa grain and other vegetation used as livestock feed.)
3. Vegetation - A horticulturist could describe the enormous sensitivity vegetation has to air pollution. Request that he bring, if available, leaf samples which indicate markings where sulfur dioxide, fluorides, photochemical smog, nitrogen dioxide, a/o ethylene affected the plants "stomata" (tiny openings where air enters a plant on the underside of the leaf).
4. Visability - A pilot and/or opthamologist could describe the glare and markedly decreased visibility which occurs from air pollution.
5. Materials - A class walk in an industrial area, alongside a roadway, in a downtown area, or on a bridge, would be an opportunity to look for evidences of corrosion and erosion due to air pollutants on stone, metal, leather, rubber, paint, etc.

6. Economics - Students may divide into committees and research the economics of polluted air in terms of higher medical costs, loss of livestock, reduced or destroyed crops, higher food bills, increased building maintenance costs, higher cleaning costs, costlier equipment, lowered real estate values.

Contact the local weather station. Determine how regional air temperatures and air flow currents affect air quality in your region as well as in other regions "downwind".

Invite to class an engineer to explain the air pollution problems caused by combustion in a jet engine diesel engine, automobile engine, and incinerator.

1. How do these engines differ from "clean engines" such as those being tested in "clean engine cars" powered by battery, natural gas, electricity, steam?
2. Illustrate with charts

Obtain animal lungs from a butcher.. Color indicates pollution level of area where animal was raised. Relate to smoking, lung cancer, asthma, emphysema, and bronchitis..

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. PEOPLE TO CONTACT:
    - a. Epidemiologist
    - b. Physician
    - c. Veterinarian
    - d. Horticulturist
    - e. Air Pollution Control Officer
    - f. Local Health Department
    - g. Pilot
    - h. Opthamologist
    - i. Citizens living amidst air pollution
    - j. Manufacturer or Industrialist
2. FIELD TRIP POSSIBILITIES:
    - a. Class might prepare a self-guided tour of their local industrial area (i.e. "the Flats" in Cleveland - free tour information guides available from Air Conservation Committee).
    - b. Visit to a local factory to learn about emission problems.
    - c. Visit to local Air Pollution Control Agency.

VOCABULARY

air pollution
air shed
"air alert"
contaminate
respiratory diseases
contaminate
particulate matter
air quality index
emission
recycled
smog
photochemical smog
smaze
inversion

MATERIALS NEEDED

Lungs from animal - butcher shop
Camera and film
Cigarette filters, new and used
Filters - used from furnace, air conditioners, Air Pollution Control Office, etc.
Materials listed on insert folder for accompanying experiments.

LEARNING RESOURCES

EXHIBIT

OUR POLLUTED AIR - A MOBIL WORKSHOP Kit contains a large specially designed flannel board, 73 felt-backed illustrations, a 104 page Air Pollution Primer, and a Teacher's Guide. The illustrations and narratives help students to graphically understand environmental pollution. This workshop is available to schools for purchase through the Air Conservation Committee at 4614 Prospect Ave., Cleveland, Ohio. For more information or a demonstration, call Area Code 216/361-0545.

FILMS AND SLIDES:

AIR - A FIRST FILM (Primary - color - 10 minutes - S.L.)
Tells how the earth is covered by an ocean of air, how air affects our world and lives; stresses the dangers of pollution.

AIR POLLUTION (Upper Adult - color - 11 minutes - S.L. - P.L.)
Air pollution as it affects building and crop damage, financial loss, plant life, control laws and graphic illustrations, and plant life experiments are shown.

AN ECO-TOUR OF THE FLATS (Set of 41 color slides (35 mm.)
All grades; available on loan from the Air Conservation Committee, 4614 Prospect Avenue, Cleveland, Ohio (telephone: 216/361-0545). Call to arrange for booking and slides series will be mailed to you.

THE POISONED AIR (2 parts - 50 minutes - P.L.)
The worldwide problem of air pollution may be seen in these views of smog and smoke-bound cities around the world.

BOOKS:

Bloome, Enid   THE AIR WE BREATHE   Doubleday   c1971
The causes and cures for air pollution. Black and white photographs of city and countryside.

Elliott, Sarah M.   OUR DIRTY AIR   Messner   c1972
A slight 60-page easy reading book about air pollution. The harm it does to living things and human beings. What can be done about it technically - what the government can do - what the individual can do.

Jones, Claire, et. al.   POLLUTION: THE AIR WE BREATHE   Lerner   c1971
This book not only spotlights the polluters of our air (i.e. automobiles and industry), it gives data and facts about the crisis situation our air is now in.

Millard, Reed   CLEAN AIR - CLEAN WATER FOR TOMORROW'S WORLD   Messner   c1971
Clean air, clean water and water resources; principles of science and technology are the chief topics of discussion in this book.

Olsen, Ib Spang   SMOKE   Coward McCann   c1972
One family's method to stop air pollution. Book has message for all ages on one of today's ecological problems.

Perera, Thomas B.   WHO WILL CLEAN THE AIR?   Coward McCann   c1971
After a visit to the country, two city children become acutely aware of the air polluters such as factories, garbage dumps, motor cars, etc.

BACKGROUND NOTES ON AIR POLLUTION

AIR is a mixture of gases (mainly nitrogen and oxygen).
AIR POLLUTION is the term given to describe the condition of dirty air and the way it got that way (mainly through people's activities); man-made contamination of the atmosphere beyond that which is natural.
AIR POLLUTANTS are those elements which contribute to make air unclean.

The average person breathes in about 35 pounds of air each day. If this air is not clean, we are affected in many ways. It has been estimated that polluted air costs each American about $65 per year or a U. S. total of over $12 billion.

1. crop failure
2. house and clothing cleaning bills
3. cattle crippled or killed
4. animal feed poisoned
5. fuel wasted in power plants
6. paint on buildings caused to peel
7. silver caused to tarnish
8. automobile accidents caused by drivers affected by air pollution
9. iron caused to rust
10. runs caused in nylon hoisery
11. rubber (i.e. tires) caused to crack and deteriorate
12. sunlight blocked out causing higher illuminating bills

But people pay for polluted air in more ways than with their pocketbooks.

Inhaled air pollutants may cause or aggravate such respiratory diseases as:
- pulmonary emphysema
- bronchitis
- lung cancer
- bronchial asthma

and can affect:
- the brain
- central nervous system
- body defense mechanisms
- vital organ systems

and can have a deleterious effect upon:
- overall work efficiency
- concentration
- intellectual functioning
- emotional functioning
- behavior
- mental health

and might even:
- impair, prolong, or prevent the healing process
- cause common colds
- cause premature death

and might commonly affect the average person subtly by causing:
- headaches
- fatigue
- depression
- irritability
- insomnia
- burning eyes

With more and more people, cars, power and waste - AIR POLLUTION MUST BE CONTROLLED.

1. Control devices to absorb and/or filter out pollutants in factories and power plants, in motor vehicles.
2. Efficient incineration of trash and burning fuels in heating equipment.

The federal CLEAN AIR ACT calls for:
- research
- standards
- federal grants
- abatement

WHAT'S YOUR AIR POLLUTION I.Q.?

QUIZ	TRUE & FALSE		ANSWERS
1. Air pollution is harmful only in cities.	YES ☐ NO ☐	1. NO	The air carries pollution far beyond the city. So do automobiles and out-of-city factories.
2. Air pollution is worse in big cities than small ones.	YES ☐ NO ☐	2. YES	Although special circumstances cause exceptions, pollution generally increases with population.
3. Nationwide, automobiles are the major source of air pollution.	YES ☐ NO ☐	3. YES	Industry, power plants, space heating, and refuse disposal follow far behind, in that order.
4. Smog is a problem only in Los Angeles.	YES ☐ NO ☐	4. NO	Los Angeles-type smog forms in many places - wherever automobile exhaust is acted upon by sunlight.
5. Inversions - in which air ground level is trapped by warmer air above - come from air pollution.	YES ☐ NO ☐	5. NO	Inversions occur naturally. They do keep pollution from being dispersed, however.
6. Chronic respiratory diseases are aggravated by air pollution.	YES ☐ NO ☐	6. YES	Studies indicate that pollution worsens these diseases and brings more deaths from them.
7. Air pollution affects only the respiratory system.	YES ☐ NO ☐	7. NO	Among other things, air pollution can aggravate existing heart conditions.
8. Air pollution can kill.	YES ☐ NO ☐	8. YES	In a number of famous long-lasting inversions, pollution brought death to many people.
9. When the plume from a smokestack is white, no pollution is coming out.	YES ☐ NO ☐	9. NO	Many polluting gases are colorless and many polluting particles are white.
10. Air pollution is expensive.	YES ☐ NO ☐	10. YES	The government estimates that air pollution damage to animals, crops, paper, cloth, rubber, leather, and stone costs each man, woman, and child in the U. S. $65 a year. That's a lot to pay for something you don't want, isn't it?

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CLASSROOM EXPERIMENTS RELATING TO AIR QUALITY

1. To Detect: PARTICULATE (SOLID) MATTER IN AIR

Materials: 50 pieces of clean white blotting paper, each 6" square; vaseline petroleum jelly

Technique:
1. Spread an even film of vaseline on one surface of each square of blotting paper.
2. Place 49 of the squares in various locations such as areas at school, home, and in the community. Mark locations on each piece.
3. Keep one square of the blotting paper in a plastic bag, unexposed to air, as an experimental control.
4. After a two-week period, carefully collect each sample.
5. Compare results among various samples and control square.

2. To Detect: SMOKE DENSITY FROM EMISSION SOURCES

Materials: "Know Your Pollutors: Smoke Chart" (Individual charts available from Air Conservation Committee, 4614 Prospect Avenue, Cleveland, Ohio 44103)

Technique:
1. Using the Smoke Charts, select various sites for comparative testing of smoke density from emission sources.
2. Walk around neighborhood and/or visit various sectors of your community to make quick field tests.
3. Compare Sources.
4. List worst offenders at time of observation.
5. Investigate the problems associated with these emission sources.

3. To Detect: PARTICULATES (AND MICROORGANISM) IN SNOW

Materials: 2 clean glasses or glass jars; clean fallen snow; snow shovel; microscope; glass slides

Technique:
1. Place an inverted glass or glass jar over clean fallen snow. This will be your control area.
2. Compare with adjacent snow over several weeks.
3. Discuss this question: What happens to air pollutants in snow as it melts in spring?
4. Where snow is deep, take a snow shovel and make a clean cut to expose layers of pollution formed with each snowfall.
5. Now melt the snow and collect the participate in a jar in class.
6. If you have access to a microscope, make slides of liquid from melted snow. You may find tiny organisms feeding off the pollutants in the snow.

AIR POLLUTANTS: SOURCES AND HARMFUL RESULTS

	AIR POLLUTANT	SOURCE	HARMFUL RESULTS
1.	CARBON MONOXIDE	Car exhaust fumes	Replaces oxygen in blood, depending upon the amount can cause dizziness or death
2.	SULPHUR OXIDES	Factories and power plants which burn coal or oil containing sulphur	Irritates eyes, nose, throat, lungs; kills plants; rusts metals; reduces visibility
3.	NITROGEN OXIDE	Burning fuels which convert nitrogen and oxygen to nitrogen dioxide	Irritates eyes and nose; Brown haze shuts out sunlight
4.	HYDROCARBONS	Unburned chemicals in combustion (i.e. car exhaust) which react in the air to produce "smog"	Eye-irritant; produces cancer in animals
5.	PARTICULATES	Small particles in air such as ash, smoke, fumes, dust, etc. which come from autos, fuels, fertilizers, etc.	Spoilage; glare; stimulates coughing in some people
6.	PHOTOCHEMICAL SMOG	Mixture of gases and particles oxidized by the sun from burning fuels	Irritation to eyes, nose, breathing; crop damage

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBLITY	PRODUCT SAFETY (TOYS)
POSITIVE VS. NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS. ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS. DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Clean water is essential to life.

The manner in which a society disposes of its liquid wastes ultimately affects its quality of life.

The geographic location and industrial make-up of a city as well as its people affect the WATER QUALITY of the region.

Water pollution is produced by natural and man-made activities.

Water pollution produced in one region can effect other regions in the watershed.

Nature recycles water to a limited degree.

People pay for water pollution in loss of health, property, and supporting natural resources.

People must either control their activities or produce and use effective anti-pollution technology.

Society must make a moral and financial commitment to preserve the quality of water to ensure its survival.

LEARNING

In order to develop an understanding of the necessity for maintaining clean "potable" water, students should research and discuss each of the following areas:

- advantages and importance of clean water
- make-up of potable water
- contaminants to clean water
- sources of contaminants
- population and industrial density and water pollution
- health (and financial aspects) of water pollution
- methods of water pollution control
- standard of living and water quality
- water quality and natural resources

SURVEY: Students to design a community survey form to answer the following questions:

1. How is water used in our daily living?
2. How much water is used each day, and by whom?
3. What is the source of this water?
4. What methods of waste water disposal are used?

Photographs, drawings, or murals may be made as a result of the survey.

Letters may be written to or interviews conducted with industrial and governmental leaders to determine how water quality affects:

seafood
crops
industrial growth
drinking water
swimming facilities
taxation

The Hach Chemical Co. (P.O. Box 907, Ames, Iowa 50010) sells kits for water and pollution testing. Your H.S. Science Dept. may already own some of this material.

Invite some H.S. science students to class to demonstrate water testing experiments.

ACTIVITIES

Committees may be formed each to seek out the appropriate community resources in order to interview, gather data, and prepare visuals on the following:

1. "Water cycle" (and seasonal variations of water table)
2. Geographical influence upon water quantity and quality
3. Watershed Topographical Maps
    a. natural and man-made sources of contamination
    b. significance of the location of these sources within the watershed area
    c. interrelationships between cities in same watershed
4. Drinking Water Quality Tests performed by professionals
    a. pH
    b. dissolved gases
    c. particulate matter
    d. bacterial contamination

Write to the Environmental Protection Agency for the "Water Quality Standards Digest". This set of informational booklets is a compilation of federal and state standards on all aspects of water quality. How do your state standards compare with those of other states?

Discuss the impact of the 1972 amendments to the Federal Water Pollution Control Act (Public law 92-500).

1. What factors are involved in order for industries to comply?
2. How do the industries in your community feel about the "zero discharge by 1985" requirement?
3. How would use of resources such as energy, chemicals, and land disposal sites for sludge be affected? Do you think the trade-offs are worth it?

Write to the Water Pollution Control Federation (3900 Wisconsin Ave., Washington, D.C. 20016) for information and answers to specific water quality questions.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. LOCAL DEPT. OF PUBLIC UTILITIES:

2. COUNTY ENGINEER'S OFFICE:

3. FIELD TRIPS:

    a. Water Treatment Plant

    b. Sewer Treatment Plant

4. RESOURCE PEOPLE:

    a.

    b.

    c.

VOCABULARY

water quality
water pollution
watershed
reservoir
contaminate
health hazard
potable; non-potable
recycle
water purification
chlorination
primary treatment
secondary treatment
"zero discharge"
eutrophication
"coliform index"
phosphate
activated sludge
aeration
filtration
BOD
drought
biodegradable
desalination
effluent
discharge
suspended solids
microbes

MATERIALS NEEDED

Reference books
Letter writing supplies
Stamp
Survey forms
Experiment materials, as listed

LEARNING RESOURCES

FILMS:

BAREGRASS CREEK (20 minutes - color - P.L.)
Photographed in the Ohio River Valley, this film shows the sparkling beauty of a stream before contamination along its course.

CLEAN WATERS (24 minutes - color - P.L.)
Illustrates the importance of our natural water supply and the dangers of pollution to fish and wildlife, city water supply systems, recreational facilities and public health.

CROOKED RIVER DIES (Intermediate - Upper - PTA - color - 20 minutes - S.L.)
This is a story of Cuyahoga River and how industry has turned it into a polluted cesspool.

VISIT TO THE WATERWORKS (Any level - color - S.L.)
Visit to water treatment plant. Good as an introduction to field trip or as substitute, if necessary.

APPROPRIATE BOOKS:

Chester, Michael   LET'S GO TO STOP WATER POLLUTION   Putnam   c1969
A look at the processes and equipment involved in the treatment of river water as it is prepared for use by the city.

Heindl, L. A.   THE WATER WE LIVE BY   Coward McCann   c1970
Thought-provoking account of the basic principles for sound water management.

Jeanes, Charlotte   WATER AND THE THIRSTY LAND   Follett   c1971
A beautifully illustrated (with photographs) book on water, man's need for it and how he has learned to control it. Special emphasis is on Salt River, Roosevelt Dam and the results of irrigation in Arizona.

Orlowsky, Wallace   WHO WILL WASH THE RIVER?   Coward McCann   c1970
An elementary ecology book which gives the facts about pollution and purification of water at a water treatment plant.

Shuttlesworth, Dorothy E.   CLEAN AIR-SPARKLING WATER   Doubleday   c1968
Forceful presentation of the fight against pollution.

Stevens, Leonard A.   THE TOWN THAT LAUNDERS ITS WATER   Coward McCann   c1971
Santee, a town in Southern California has proved by treating the water through various processes, it can be used again for irrigation and many recreational events.

NOTES:

BACKGROUND NOTES ON WATER POLLUTION

FACTS:

1. Water is exposed to pollution while falling as rain, running over the ground surface or in streams, or percolating through the soil.
2. The water cycle has three phases:
   a. precipitation
   b. runoff
   c. evapotranspiration
3. Completely pure water is not found in nature since as it falls as rain or snow to earth, it absorbs dust and such gases as carbon dioxide and oxygen.
4. Water Quality and Health:

   It has long been recognized that inferior water quality can have immediate and long-term effects upon human health. As recently as fifty years ago, our country experienced massive outbreaks of various diseases attributed to water-borne organisms.

   By rigid standards established for initial sewage treatment and subsequent treatment of drinking water, human health has been protected from these deadly epidemics. When, in rare cases, disease outbreaks are attributed to contaminated water, water control and health authorities act swiftly in restricting usage of these supplies.

   a. Waterborne Diseases:
      1. Typhoid fever
      2. Paratyphoids
      3. Dysentery
      4. Infectious hepatitis
      5. Cholera
      6. Parasitic worms

   b. Checks on Disease:
      1. Increased knowledge of water treatment
      2. Protection of water supplies
      3. Improved waste disposal
      4. Immunization techniques before and during epidemics

(All units expressed as parts per million except turbidity and pH)

	Before Treatment	After Treatment
Turbidity	9	0.1
Total solids	209	198
Alkalinity Total ($CaCO_3$)	96	85
Hardness ($CaCO_3$)	126	130 (7.5)*
Ph - as received	8.2	7.2
Ph - after ($CaCO_3$)	8.0	7.9
$CaCO_3$	3	0
Calcium	38	42
Magnesium	6	9
Sodium	12	12
Iron	0.7	0
Manganese	0	0
Sulfate (SO_4)	22	26
Phosphates	0	0
Nitrates (NO_3)	0	3.2
Chlorides	22	25
Fluoride	0.2	1.0

* -7.5 grains per gallon

FIELD TRIP WORKSHEET

LOCATION OF TREATMENT PLANT: ______________________________

CONTACT PERSON: ______________________ ______________

____

During the course of the field trip, seek answers to the following questions:

1. What types of material come into the treatment plant? ______________
2. What are the sources of this "influent"? ______________
3. What percentage of influent is solid waste? ______________
4. How are solids removed? What happens to them? ______________
5. What happens to these same solids in areas not served by sewers and treatment plants? ______________
6. What is the relationship between improperly treated sewage and water and air pollution? ______________
7. Who pays for sewage treatment? ______________

CLASSROOM EXPERIMENTS ON WATER QUALITY

It is advised that the water samples used for the following tests be taken from many different sources, i.e. faucet, stream, pond, rain water, lake, etc.

1. To Detect: pH LEVEL OF DRINKING WATER

Obtain solutions of pH indicators from swimming pool suppliers in your community.

To a clean test tube add at least 10 ml. water sample. From a clean eye-dropper, add brom thymol blue indicator, drop by drop, until a constant color is achieved.

For interpretation of color range, consult test kit.

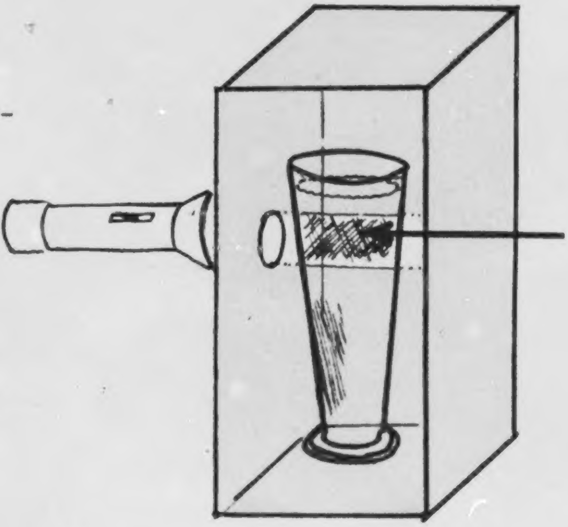
2. To Detect: DISSOLVED GASES WHICH HAVE NATURAL ODORS

In a pyrex test tube, place 10 ml. water sample. Carefully heat over low flame. Pass the test tube under your nose in a back and forth motion in order to detect dissolved gases which are being driven out of the water by the heating process.

3. To Detect: PARTICULATE MATTER

Finely divided particulate matter in water tends to give it a cloudy appearance when found in dense quantities.

Place 10 ml. drinking water sample in a clean glass. Place glass inside a small cardboard shoebox in which a small hole has been cut in one side. Using a flashlight, pass the beam of light through the hole in a manner which permits it to pass through the side of the glass. Small amounts of suspended materials will be detected as a cone of light passes through the water. (Distilled water will produce no cone of light.)



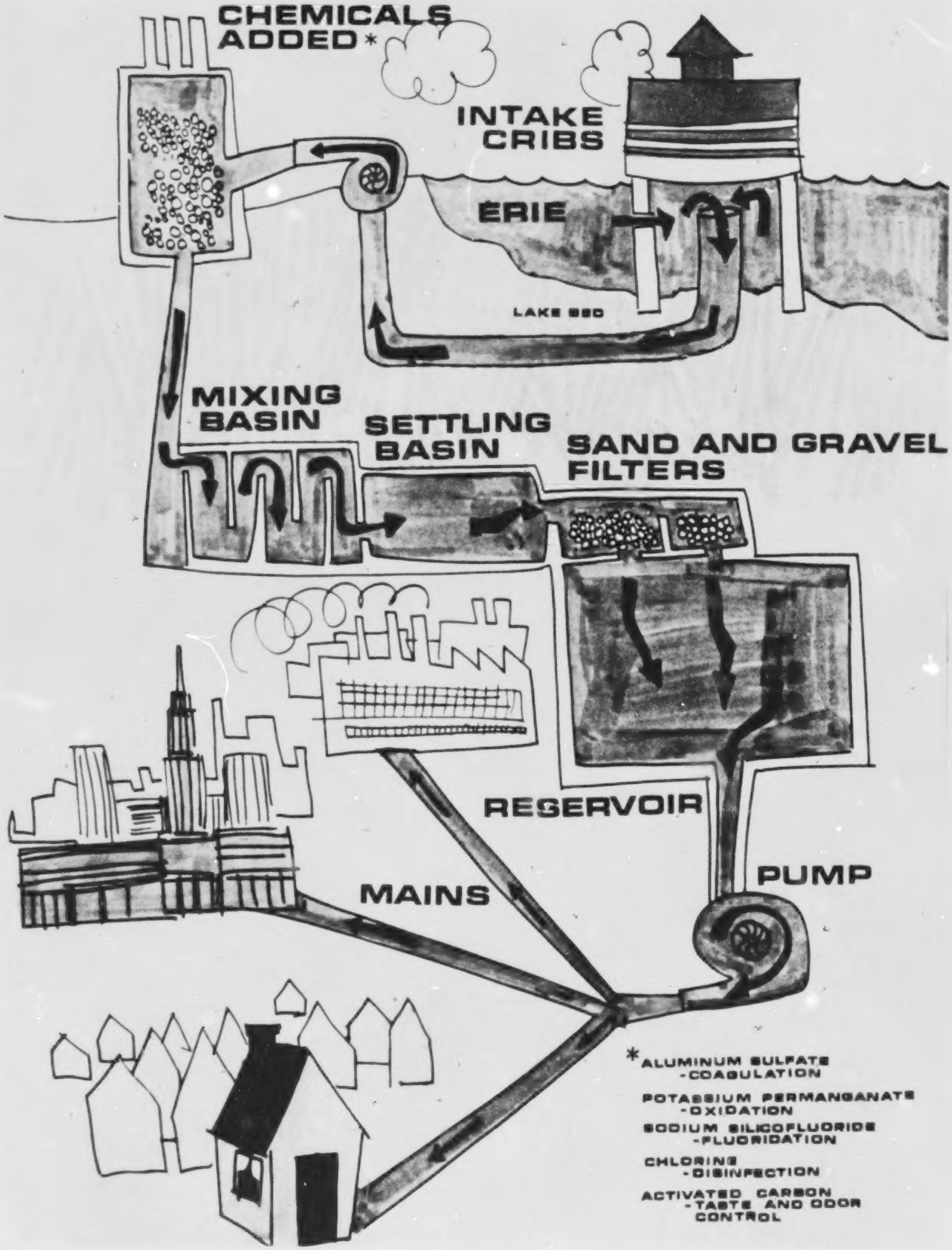
4. To Detect: BACTERIAL CONTAMINATION

Invite to class a microbiologist to demonstrate procedures used in the laboratory to detect bacterial contamination of drinking water.

5. To Detect: CHEMICAL CONTAMINATION

Invite to class a high school chemistry student or water softening salesman to demonstrate the presence of dissolved chemicals in water.

Cleveland Water:
From Lake Erie Intake to Kitchen Faucet


CHEMICALS ADDED*
INTAKE CRIBS
ERIE
LAKE BED
MIXING BASIN
SETTLING BASIN
SAND AND GRAVEL FILTERS
RESERVOIR
PUMP
MAINS
*ALUMINUM SULFATE -COAGULATION
POTASSIUM PERMANGANATE -OXIDATION
SODIUM SILICOFLUORIDE -FLUORIDATION
CHLORINE -DISINFECTION
ACTIVATED CARBON -TASTE AND ODOR CONTROL

Taken from: "The Cleveland Water Story"
Public Utilities
City of Cleveland

IN SATISFYING THEIR BASIC NEEDS People inieract with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	**SHELTER**	CHEMICAL

HUMAN SURVIVAL

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RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action **PEOPLE CAN** meet basic needs while **PRESERVING THE QUALITY OF LIFE.**

LEARNING STATEMENTS

A good home environment is essential to life.

The manner in which a home is maintained ultimately affects the qaulity of life.

A good home environment helps to meet the physical and emotional needs of its occupants.

A good home environment provides enough space and service facilities to adequately serve its occupants.
- -Adequate facilities should be provided for daily activities such as sleeping, recreation, etc.
- -Adequate facilities should be provided for food, storage preparation.
- -Adequate facilities should be provided for sanitary needs, refuse disposal and storage, etc.

A home's physical facilities must be maintained in good repair.
- -The structural condition of the dwelling must be in good repair.
- -Walls, ceilings, and floors must be in good repair and be easily cleanable.
- -Plumbing, heating, refrigeration, and electrical equipment must be adequate and maintained in good repair.

Deterioration or breakdown in a home's physical facilities may result in physical and/or psychological impairment to its inhabitants.
- -Some diseases are more easily transmitted in a deteriorated home environment.
- -Most children in the early developmental years learn about their environment by exploring with their senses.
- -Children living in houses built prior to W.W.II may become lead poisoned by eating flaking, peeling paint chips con taining lead.

LEARNING

In order to develop an understanding of the necessity for maintaining a good home environment, students should discuss the inter-relationships which exist between each of the following and the concept of "health and comfort":

- food
- housing
- plumbing
- refuse disposal
- accidental poisonings
- rat control
- lead poisoning
- flooded basement
- accidental injury
- noise
- water supply
- aesthetics
- insects
- leaky roof
- overcrowding
- refrigeration
- heating

From the Public Library, students should be able to obtain descriptions of standards and statistics put out by the U. S. Census Bureau.

1. What is meant by
   "proper plumbing"
   "proper heating"
   "proper refrigeration"?
2. How does our community's or our state's statistics compare with others in terms of adequacy of our population's living conditions?
3. What is meant by
   "standard"
   "sub-standard"

Students to discuss their own home environments. Individual and class composite charts may be made listing in two columns:

Things which help to make a good home environment	Things which hinder a good home environment

Invite a guest speaker to class to discuss the impact the home environment may have upon a person's mental health.

ACTIVITIES

Creative Writing may help students to appreciate the positives in their own home environments while recognizing the negatives. Possible story titles:

- "The Most Precious Thing About My Home"
- "My House And My Family Are Home To Me"
- "My Home Is Like No Other"
- "The Comforts Of Home"
- "We Call It Home"
- "What We Need Is A Tool Kit, Elbow Grease and Family Co-operation"
- "The Hidden Danger At My House"
- "Our Battle With Rudy Rat"
- "Lead Poisoning: Could It Happen At My House?"
- "Accidents Aren't Planned"
- "Food Poisoning: When Does It Strike?"

Role-Playing - Groups of students may enjoy acting out the effects of various home environments upon an imaginary family.

SURVEY: Students to devise home survey form to assess quality of their home environments. As a result of the survey, one aspect could be studied in depth. For example:

LEAD POISONING

1. What is the relationship between older houses, flaking paint, and lead poisoning?
2. What are the symptoms of lead poisoning?
3. What damage might result?
4. What housing improvements can help to reduce the lead poisoning hazard?
5. Bring some potato chips and some paint chips to class. Explain how a small child might view the two.
6. Using these and other paint chips conduct the experiment described on the reverse side of this folder.
7. Contact your local Health Dept. to learn of the lead poisoning problem in your community. What is being done about the problem? What can you and your classmates do? What can your parents do?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. LOCAL ENVIRONMENTAL HEALTH DEPT.:

2. LOCAL HOUSING DEPT.:

3. POISON INFORMATION CENTER:

4. NUTRITION SERVICES:

5. SAFETY COUNCIL:

6. SUGGESTIONS FOR SPEAKERS:
   - a. Housing Inspector
   - b. Social Worker
   - c. Sanitarian
   - d. Builder
   - e. Psychologist
   - f. School Nurse
   - g. Health Dept. - Lead Poisoning Representative

VOCABULARY

"home environment"
"proper (plumbing)"
standard vs. sub-standard
accidental injury
overcrowding
lead poisoning
food poisoning
pica
refrigeration
Salmonella

MATERIALS

U. S. Census Bureau housing standards and statistics
Writing supplies
Survey forms
Experiment materials listed on back of this folder

EXPERIMENT TO DETECT: LEAD IN PAINT CHIPS

Materials: Mortar and pestle; dried paint chips, different test samples from various locations (old house, newer house, etc.); 5 drops of 6N-HCl; test tube (pyrex); 5 ml water; small burner or hot plate; 5 - 10 drops of 5% solution of sodium sulfide

Technique:
1. Crush dried paint chips in mortar and pestle.
2. Transfer about one-half gram of the ground paint chips into a test tube.
3. Add 5 ml. of water and 5 drops of 6N-HCl.
4. Bring to a gentle boil over a small burner or hot plate. (CAUTION: hold test tube away from yourself or other people.)
5. Cool to room temperature.
6. Prepare a 5% solution of Sodium Sulfide.
7. Add 5 - 10 drops of a Sodium Sulfide solution.

Interpretation: A black precipitate should form if lead is present.

BACKGROUND NOTES ON LEAD POISONING:

1. Lead poisoning is often referred to as the "silent epidemic".
2. Tests have indicated that 20% of the children in the U. S. have elevated levels of lead in their blood. Confirmed lead poisoning,necessitating medical treatment, afflicts 3% of U. S. children.
3. Lead poisoning occurs mainly to small children 12 months to 6 years of age. The "teething stage" between ages 1 and 3 is the most dangerous time.
4. Lead poisoning, in children, results most frequently from the ingestion of chips of lead-containing paint from walls and woodwork in old dilapidated housing. (In addition, new research is pointing out that small children, close to the ground, breathe in proportionately more automotive exhaust fumes than do adults, especially if these children live in heavily traveled urban centers.)
5. The sources of lead in our environment are exhaust fumes of cars, trucks, buses, airplanes, etc.; road dust; snow; water; pencils; charcoal; leaded glass; dust; etc.
6. Early symptoms of lead poisoning (often indistinguishable from other illnesses) are irritability, stomach ache, crankiness, vomiting. Later signs are loss of co-ordination, convulsions, loss of consciousness.
7. Damages caused by lead poisoning are kidney malfunctions, learning disorders, mental retardation, brain damage, death. (About 5% of childhood lead poisonings are fatal.)
8. Early detection through voluntary screening (simple blood test) should be encouraged.
9. Environmental corrections such as paint scraping, installation of wallboard, etc. should be made to prevent a recurring problem.

FILMS:

Arrangements for showing the following films (in Cleveland) may be made by calling The Cleveland Dept. of Public Health and Welfare, Childhood Lead Poisoning Control Program, at 621-3779. Both these films graphically depict the causes, nature, treatment and prevention of lead poisoning.

THE HIDDEN EPIDEMIC (15 minutes - color - Cleveland and State of Ohio Health Dept.)

LEAD POISONING COULD STRIKE YOUR CHILD (27 minutes - color - Cleveland Health Dept.)

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	**CHEMICAL**

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS. NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Chemicals are essential to life.

People use a wide variety of chemicals in their daily living.

The manner in which people use chemicals ultimately affects the quality of life.

Chemicals alter the environment.

Chemicals alter the chain of life in the environment.

Chemicals can initiate a change in the relationship between people and their environment.

Some chemicals are more powerful than others in their affect upon humans and the environment.

Some chemicals help to maintain life while others block or destroy life.

Chemicals can increase standard of living.

Chemicals can destroy environment (defoliants) or man (chemical warfare).

Chemicals help in achieving and maintaining good health, food production, water purification, population control, manufacturing products which help meet the basic needs of people.

Misuse of chemicals can alter the environment in possibly an irreversible manner.

People must carefully use chemicals in limited amounts and only when necessary.

Society must make a moral and financial commitment to limit chemical use and prevent chemical contamination of their environment.

LEARNING

In order to develop an understanding of the necessity for proper use of chemicals in our environment, students should research and discuss each of the following areas:

- -classification and types of chemicals
- -reasons chemicals used
- -different effects desired through chemical usage
- -location sites of chemical usage
- -environmental health hazards involved in chemical usage
- -cost/benefit factors in terms of financial, environmental, and health factors
- -chemical usage and quality of life

Committees may be formed - each to seek out the appropriate community resources in order to interview, gather data, and prepare visuals on the following:

pesticides and insecticides
preservatives
natural contaminants (in soil, etc.)
medicinal chemicals
chemical allergins
dyes
lead (paints, gasoline)
chemical warfare
natural chemicals
disinfectants
food additives
poisons, such as rodenticides
airborne chemicals
chemical solvents
aerosols
toxins
extenders

SURVEY

Students should directly relate their research on chemical usage to application in their own community.

Each student should apply his findings to the local community through use of the survey form on back of this folder.

Students to prepare posters showing specific environmental health situations with and without the use of chemicals.

1. In what ways did the use of chemicals add to the quality of life?
2. What other factors needed to be considered?

ACTIVITIES

Pupils to ponder the three means of insect control and then stage a DEBATE:

1. Chemical control (poisons)
   vs.
2. Environmental control (reduction or modification of habitat)
   vs.
3. Biological control (introduction of sterilization of one sex of species, viruses, insects)

Who was Rachel Carson?

1. Read selected parts of Silent Spring in class.
2. Why did this book have such an impact upon society?
3. What is the relationship of chemical contamination and other environmental areas? (i.e. water quality)

Role-Playing can be a good means to enable students to feel the controversy brought about by the use of chemicals.

environmentalist
farmer
doctor
naturalist
sanitarian
manufacturer
legislator
exterminator
consumer
nutritionist

Through discussion and home survey, students should become aware of the hazards which chemicals present in the home.

1. What substances commonly found in the home are poisonous?
2. Where are these substances kept?
3. How do accidental poisonings occur?
4. Who is most commonly a victim of accidental poisoning?
5. What should be done if someone in your home accidentally swallows a dangerous chemical?
6. What is "syrup of ipecac"? When should vomiting not be induced?
7. What on the label of a product might be helpful in the event of accidental poisoning?
8. What can be done to prevent home poisonings?
9. What specific steps will you and your family take to eliminate the possibility of accidental poisoning at your house?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. ALLERGIST:

2. PEST CONTROL OPERATOR:

3. CHEMISTRY DEPT. OF LOCAL COLLEGE:

4. COUNTY AGRICULTURAL EXTENSION SERVICE:

5. SENATOR AND/OR CONGRESSMAN:

6. LOCAL CHAPTER OF SIERRA CLUB:

7. POISON INFORMATION CENTER:

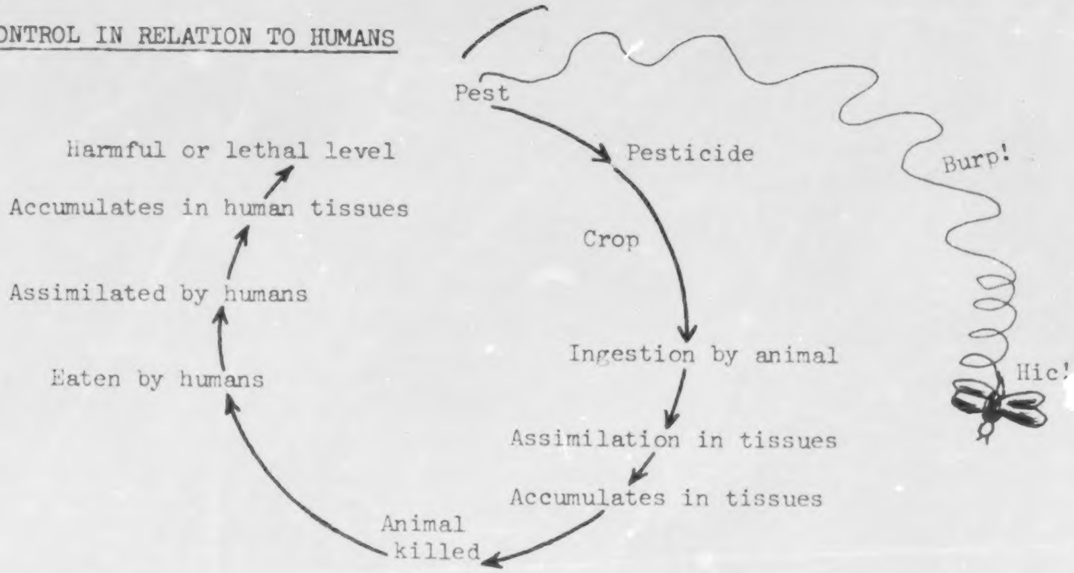
VOCABULARY

chemicals
pesticide
disinfectant
preservatives
rodenticides
antibiotics
extenders
chemical warfare
aerosols
allergins
"chemical pollution"
insecticide
leachate
"airborne chemicals"
toxins
injestion
"natural contaminant
exterminate
pest control
Syrup of Ipecac

MATERIALS NEEDED

Labels from containers of poisonous chemicals
Survey forms
Newspapers
Research sources

PEST CONTROL IN RELATION TO HUMANS


Pest
Pesticide
Crop
Ingestion by animal
Assimilation in tissues
Accumulates in tissues
Animal killed
Eaten by humans
Assimilated by humans
Accumulates in human tissues
Harmful or lethal level
Burp!
Hic!

SOURCE OF FREE POISON CONTROL MATERIALS:

American Association of Poison Control Centers
Education Committee
10525 Carnegie Avenue
Cleveland, Ohio 44106

ORGANIZATIONS INVOLVED IN USE OF CHEMICALS:

American Pharmaceutical Association
Food and Drug Administration
Rachel Carson Trust (8940 Jones Mill Road, Washington, D. C. 20015)
U. S. Department of Agriculture
U. S. Department of Defense
U. S. Department of Health, Education, and Welfare
U. S. Department of Interior
U. S. Department of Natural Resources

BOOKS TO OBTAIN AND READ IN CLASS:

Bancroft, Griffing VANISHING WINGS Watts c1972
Fictionalized account of the probable effect man's continued use of insecticides will have on the food chain as it relates to the survival of three types of bird of prey: the osprey, the bald eagle, and the peregrine falcon.

Carson, Rachel THE SILENT SPRING Crest; 95¢ in paperback c1962
This book discusses effects of chemicals on our environment with emphasis on insecticides.

Graham, F. Jr. SINCE SILENT SPRING Houghton Mifflin; $6.95 c1970
This book takes up where The Silent Spring leaves off and relates story of Rachel Carson.

Pomerantz, Charlotte THE DAY THEY PARACHUTED CATS ON BORNEO Young Scott c1971
A play based on a true story of the unexpected effects of DDT on the island of Borneo. Scenery by Jose Aruego.

BACKGROUND NOTES ON CHEMICALS IN OUR ENVIRONMENT

WHAT IS CHEMICAL POLLUTION?

Chemical pollution is the resultant situation which arises when chemicals are added to food, water, air, soil, etc. in amounts which ultimately become harmful to living plants, animals, and people.

"The ability of the earth to support its present and future human population, to say nothing of its ability to sustain the standards of living we now enjoy and those to which we aspire, depends upon man's ability to adjust his physical environment and/or his ability to control his population growth. Until control of population becomes a reality, environmental management offers the greatest hope for maintaining and advancing the well-being of humanity.

The use of chemical pesticides, for example, contributes greatly toward the increase in our agricultural productivity and serves as an important factor in the control of disease vectors. In enlisting these pesticides as an instrument of environmental manipulation, man has at the same time established a risk of uncertain magnitude. This risk involves not only the immediately discernible hazards of contamination, but also the potential hazard of the unknown, unobserved, and unmeasured long range cumulative effects of pesticides upon both man and his environment. Thus we are faced with the problem of avoiding the potential dangers in this risk while benefiting from the fruits of our knowledge." (Policy Statement on Pesticides - American Public Health Association)

Benefits from the use of pesticides have long been recognized in the field of public health. Pesticides are an important aid in the control of insects and rodents and in the reduction of the incidence of disease. However, it is important to recognize that the diseases controlled by pesticides are also partly or totally controllable by proven public health practices. Wherever possible, pests should be controlled by proven sanitation practices, and pesticides should be employed only to the extent necessary for effective control.

CHEMICAL HAZARDS

Three major factors contribute to the concern for the hazards of chemical usage.

1. The ability of some chemicals to appear far from the place of initial application.
2. The ability of some chemicals to persist for long periods with cumulative effects.
3. General ignorance of the potential environmental and health hazards associated with the continued use of chemicals.

PRINCIPLES OF SAFETY

In order to safely use any tool, whether chemical or mechanical, the hazards or risks involved must be known to the user. The most important hazard to be avoided in the use of chemicals is that of acute poisoning. For example, the various chemicals in use as pesticides are all, to some degree, poisonous to some biological systems, otherwise they would not be effective as pest control agents. Each year there are a number of poisonings and some death attributable to the use of pesticides.

The classifications of hazard give major emphasis to dermal toxicity since the skin is a primary route of exposure. Respiratory toxicity and oral ingestion are also possible methods of poisoning. Although poisoning is usually the most serious risk, there are additional hazards arising from the use of chemicals. They include irritation and inflammation of the skin, eyes, and respiratory tract, as well as allergic responses.

Both research and experience indicate that chemicals can be used safely, provided that recommended precautions are followed. However, misuse may lead to poisoning and other adverse effects upon people and the environment.

QUOTES TO DISCUSS IN CLASS

The following quotations point up some of the issues being raised concerning the use of chemicals in our environment.

1. What is significant about each one of these statements?
2. What is the relevance of these statements to you, your community, your health?
3. Create your own original statements relating to the use of chemicals in our environment. Perhaps other people will then quote you if your statement shows good thinking and accurate information.

"...the use of lead in gasoline has increased tremendously. Today, about two pounds of lead per capita are blown into the air of the United States each year."

"The feeding of lead to mice and rats in amounts comparable to the present human intake has been found to result in significant shortening of the life span by a general reduction in vigor. Other experiments point to the red blood cells as the principal sufferers from low lead intake; the brain, the kidneys and other organs become involved only with larger doses."

Joshua Lederberg, Ph.D.

"It is the only environment we have. There are more than 20 tons of DDT 'on the hoof' in this country, 'walking around' stored within the fatty tissues of 200 million Americans."

Irving S. Bengelesdorf, Ph.D.
Los Angeles Times

"The new technological man carries strontium 90 in his bones, iodine 131 in his thyroid, DDT in his fat, asbestos in his lungs."

"Our technology, while magnificently productive, is seriously flawed because it is consuming the natural capital of mankind -- namely, the environment and the people who live in it -- at such a rapid rate that it threatens probably within the next 50 years to destroy it irreparably."

Barry Commoner, Ph.D.
The Washington University

SURVEY ON CHEMICAL USAGE IN OUR OWN COMMUNITY

CHEMICAL USED	REASON NEEDED	EFFECT DESIRED	LOCATION USED	ENVIRONMENTAL HEALTH HAZARDS INVOLVED	COST/BENEFIT EVALUATION
1.					
2.					
3.					
4.					
5.					
6.					

POISON CONTROL INFORMATION

The American Association of Poison Control Centers (10525 Carnegie Avenue, Cleveland, Ohio 44106) reports that 450 children a year, more than one every day, die in the United States as a result of accidental poisonings. This is more than die each year from rheumatic fever and such contagious diseases as polio, whooping cough, diphtheria, strep throat, and scarlet fever combined.

Every day of the year another 1,100 children (500,000 yearly) accidentally eat or drink a product which was never intended for that purpose.

Ninety percent of all victims of accidental poisoning cases reported involve children under five years of age.

Substances most frequently involved:

Household cleaning products (detergents, soaps, bleach, cleansers)
Aspirin, baby and adult forms
Miscellaneous internal medicines
Antihistamines and cold medicines
Vitamins
Insecticides, liquids and sprays
Disinfectants and deodorizers
Kerosene
Lighter fluid
Turpentine and solvents
Paints
Products containing lye and acids
Plants
Perfume, toilet water
Glues and adhesives
Moth balls and flakes

TO "POISON-PROOF" YOUR HOME . . .

1. Keep household products and medicines out of reach and out of sight of children, preferably in a locked cabinet or closet. Even if you must leave the room for only an instant, remove the container to a safe spot.

2. Store medicines separately from other household products and keep these items in their original containers - never in cups or soft-drink bottles.

3. Be sure all products are properly labeled, and read the label before using.

4. Always turn the light on when giving or taking medicine.

5. Since children tend to imitate adults - avoid taking medications in their presence.

6. Refer to medicines by their proper names. They are not candies.

7. Clean out your medicine cabinet periodically. Get rid of old medicines by flushing them down the drain, rinsing the container in water, and then discarding it.

8. Post in an easily accessible spot (best taped on telephone) the following phone numbers:

Doctor________________
Police________________
Hospital______________
Poison Information Center____________

ENVIRONMENT

Only an informed people interacting with their environment can understand environmental interrelationships in order to preserve their environment and their quality of life.

UNIT	PAGES
DEFINITION - Everything around us is part of our environment...	67-70
POSITIVE VS. NEGATIVE - All people benefit form a clean environment and suffer from an unclean environment	71-74
EFFECT UPON PEOPLE - The environmental setting in which a person lives and works can either help or hinder his emotional growth..	75-78
AESTHETIC SATISFACTION - It is aesthetically satisfying to the individual to improve his immediate environment..............	79-82
PUBLIC PROPERTIES - It is each individual's right and responsibility to enjoy and care for public parks, playgrounds and properties.................................	83-86
VANDALISM - Vandalism often aggravates already critical environmental conditions	87-90

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	[illegible]	EFFECT OF COOPERATION: COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD, MILK)
AESTHETIC VALUES	[illegible]	PROBLEM SOLVING	LEGAL ACTION
[illegible] PROPERTIES	[illegible]	INTERNATIONAL [illegible]	LAWS & AGENCIES
[illegible]	[illegible]	[illegible]	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Through cooperative planning and action **PEOPLE CAN** meet basic needs while **PRESERVING THE QUALITY OF LIFE.**

LEARNING STATEMENTS

Everything in our neighborhood is part of our environment.
1. Houses
2. People
3. Streets
4. Garbage
5. Sun
6. Water

Our environment is where we live and play.

We should be aware of the environment in which we live.

Certain things in our environment are necessary for us to live.

Our environment is made up of many man-made aspects as well as natural qualities.

LEARNING

Class may be interested in taking a class walk around the school block to view the environment in a new, enlightened way.
1. What is our environment like?
2. What is the weather like in our environment?
3. How does man "adapt" to his environment? (Wears coat when it is cold, builds houses to live in, etc.)

"Keen Eye Contest" - awards to students who do best job of recognizing details of their environment and environmental conditions.

Help class to assemble a scrapbook ("A Peek Into Our Environment") using drawings and magazine pictures. Correlate with reading activities.

Discuss the essentials for life: air, water, food, shelter.

What do we need to live in our environment?
1. What do we breathe, drink, eat?
2. How do we protect ourselves from bad weather?

The "environmental concept" may be illustrated through the reading materials being used by the students:
1. Which stories or books tell us more about our environment?
2. Why are environmental stories interesting to us?

ACTIVITIES

Pupils should be encouraged to distinguish between the "natural" aspects (leaves, rocks, insects, etc.) vs. "man-made" items in our environment (plastic toys, keys, crayons, ball, pencils, etc.)

1. What parts of our environment are man-made? (Buildings, cars, streets, etc.)
2. What parts of the environment are natural? (Trees, lake, birds, etc.)

Students may draw pictures depicting parts of the environment. Label parts of pictures as "man-made" or "natural".

1. What kinds of things grow in our environment?
2. What animals are natural to our environment?

Have students discuss the following questions:

1. What would life be like without the man-made parts of our environment?
2. Why are there museums of natural history?
3. Are "natural" products ever used in making "man-made" products?

Visit a paper mill or take other appropriate field trip. Follow up trip with a class mural depicting specific operations observed.

1. Who was doing what?
2. Where was it being done?
3. Why was it done?
4. How was this a contribution to society?
5. In what way did you profit from this field trip?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. POINTS OF INTEREST:
    - a. School
    - b. Block
    - c. Neighborhood
2. MUSEUM OF NATURAL HISTORY:

VOCABULARY

environment
neighborhood
man-made
natural
museum
adapt

MATERIALS NEEDED

Art materials
Items to be classified (natural and man-made).

SUGGESTED BOOKS:

Carrick, Carol   THE DIRT ROAD   Macmillan   c1970
A boy and his dog enjoy the wonders of nature as they walk down a dirt road.

Bourne, Miriam A.   RACCOONS ARE FOR LOVING   Random   c1968
City children enjoy a day in the country learning about wildlife. Integrated.

Busch, Phyliss S.   PUDDLES AND PONDS   World   c1969
An introduction to life in and around city puddles and country ponds. Intended to motivate very young children to be more curious about the small things in nature.

MOVIE TO STIMULATE CRITICAL OBSERVATION:

LEAF (7 minutes - color - P.L.)
A remarkable study of the enchanting beauty and mood of nature in which the camera follows the progress of one golden, falling leaf as it is buffeted by the wind. No narration is used - only the natural sounds of the wilderness are heard as the leaf both battles and caresses the elements of nature. Filmed in California Yosemite Valley.

COMMUNITY RESOURCES TO CONTACT:

1. Senior citizens who have been long-time neighborhood residents:

    a.

    b.

2. Policeman to discuss safety in the neighborhood:

    a.

    b.

FIELD TRIP IDEAS:

1. Processing plant (e.g. paper mill) visibly using natural materials.

2.

3.

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTES	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

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EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION: COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS - AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS. DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

All people benefit from a clean environment and suffer from an unclean environment.

A clean environment allows people to live a better life; an unclean environment breeds filth, disease, hardship, and discontentment.

The health of an individual is often influenced by the environment in which he lives.

Water, air, and food are necessities for life.

Man suffers when clean water, air, and food are unavailable to him.

Excessive noise, accidents, and environmental hazards lower the quality of life in a given environment.

Insect and rodent infestation are generally thought to lower the human living environment.

LEARNING

Through recall, environmental cause and effect might be illustrated:

1. Eating spoiled food leads to sickness and vomiting.
2. Insect infestation may lead to bites, itching, uncomfortable feelings.
3. Smoky air may induce coughing, choking, and eye irritations.
4. Dirty water limits recreation at beaches, and limited drinking supply.
5. Home accidents may lead to injury, infection, stitches, and casts.

Vocabulary words may be used by students for each form of environmental cause and effect.

Pupils may construct puppets and show the puppets under varying environmental conditions.

Refer to sample lesson on back page.

Youngsters to draw "Before" and "After" pictures of clean and unclean environments.

Students should be encouraged to think of excessive noise as a form of pollution. Why is loud noise offensive? What loud noises are offensive to you? Illustrate offensive noise situations.

Tape record noises in the school and home environment. Students to identify the noise and discuss specific ways in which the noise may be reduced.

Students to draw about and describe the loudest noise they ever heard.

ACTIVITIES

What do you think this EXPERIMENT will show?

To encourage the class to see the relationship between insect and rodent infestation and food attraction, perform with students the following experiment:

1. Place two pieces of bread (one exposed, one in a plastic bag) on a table
2. Put some ants next to both pieces of bread
3. The ants should be attracted to the exposed food.

Has your food at a picnic ever been attacked by insects? Explain what happened.

How might we interpret this as it might pertain to our kitchens?

Relate the necessity of water to life with the hazards brought about by water pollution.

1. What would happen to living things if they would be deprived of water?
2. Experiment by watering only one of two plants. What are the results?
3. Experiment by watering one of the two plants with polluted water and one with clean, fresh water. Students may discuss their findings and draw applicable conclusions.

Each year thousands of children are accidentally poisoned in their own homes.

1. What are "poisons"?
2. Make a list of poisonous substances: aspirin, soaps, detergents, vitamins, medicines, plants, bleach, polish, perfume, etc.
3. How might small children become poisoned by these items?
4. Where are these products kept in your house?
5. What safety tips should you and your family follow to prevent accidental poisonings?
6. What is lead paint poisoning?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. SCHOOL NURSE:
2. INDUSTRIAL ACTIVITY IN THE AREA WHICH CONTRIBUTES TO VARIOUS FORMS OF POLLUTION:
   a.
   b.
3. CONTACT THE AMERICAN ASSOCIATION OF POISON CONTROL CENTERS (10525 Carnegie Ave., Cleveland, Ohio 44106) for educational poison control materials. Consult the poison control center in your locale for a guest speaker.
4.

VOCABULARY

health
environment
community
hazard
infestation
poisons
accidental poisoning
lead paint poisoning

MATERIALS NEEDED

Tape recording equipment
Drawing supplies
2 pieces of bread
1 plastic bag
Ants
Paper bags or other puppet materials

"A LOOK AT OUR ENVIRONMENT"

OBJECTIVES

1. To make child feel he has a vital role to play in maintaining the environment.
2. To use child participation in activities concerning environment.

PROCEDURES

1. Establish relationship between health and environmental health.
    a. Create a discussion among students concerning health and health habits.
    b. What is "health"?
    c. What must we do to maintain good health?
    d. What is usually the result if we do not practice good health habits?
    e. What does "environment" mean?
    f. What part does the environment play in your health?
    g. What is considered a good healthy environment? A bad one?
    h. What can you, as students, do to improve your environment?
    i. Can you look at your neighborhood and see any good points?
    j. Bad points? List.
    k. What would you suggest as solutions to any problems listed?

2. What is "environmental health"?

3. Explain city's function in maintaining the environment.
    a. To provide public with information concerning health hazards and habits.
    b. To make follow-up investigations to ensure that good habits are followed and hazards eliminated or under control.

4. Why is it so important to maintain a safe, sanitary environment?

5. Encourage children to initiate a project which will enable them to appreciate the need for maintaining a healthy and comfortable environment.

QUOTE TO DISCUSS WITH CO-OPERATING TEACHERS AND PARENTS:

"As unique as we may think we are, we are nevertheless programmed genetically to need clean air and sunshine, a green landscape and unpolluted water, and natural animal and vegetable foods...If the concrete and steel city...turns man into an asocial, erratic, and sick animal; if urbanization degrades human society through increased emotional stress, crime, delinquency, slums, and other neuroses and psychoses, it is because the genetic flexibility of the human animal....is not great enough....Our human genetic adaptations are here simply out of evolutionary context."

Dr. Hugh H. Iltis
University of Wisconsin

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTES	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS - AGENCIES
[illegible]	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

The environmental setting in which a person lives and works can either help or hinder his emotional growth.

Neighborhood environmental conditions contribute to our attitudes toward life.

A person's surroundings has an influence upon how he feels physically, emotionally, and psychologically.

It is pleasing to surround ourselves with beauty.

People should try to make the places where they live and work more beautiful.

LEARNING

Discuss positive and negative elements in the environment. A composite list may be drawn up from group suggestions. Such listings as the following might be evaluated:

community pride
vacant houses
playgrounds
stray dogs
thriving businesses
billboards
drunkards
traffic lights

Extend classification to environmental conditions such as:

1. Crowded streets
2. Open park land
3. Clean air
4. Oily water
5. Loud noise
6. Overflowing garbage cans

Why are certain elements positive and others negative?

1. What factors create a positive environmental setting?
2. How might undesirable factors be changed or eliminated?

Class may weave two stories with each student adding details:

1st	2nd
Living on a dirty street filled with garbage, rats, smoky air, loud noises, and dying trees, etc.	Living on a clean, quiet street filled with gardens, garbage cans on racks, clean air, etc.

Dioramas constructed in shoeboxes could be made to graphically convey the negative and positive aspects of an environment.

ACTIVITIES

Panel Discussion Topics:

1. Advantages and disadvantages of living either in:
    a. Urban area
    b. Rural area
    c. Suburban area
2. Influences of immediate environment upon an individual's social and emotional growth and attitudes.

Role-Playing Situations:

1. Dangers associated with vacant houses.
2. Desirable response if approached to use drugs.
3. Feelings associated with being in different settings (e.g. trapped elevator, spacious park, spooky house, dark street)
4. Life on a farm vs. life in a city.

What is "beauty"?
Are there standards for beauty?
How might a sensitivity towards beauty be developed?

1. What do you consider beautiful?
2. Do your friends always agree with your judgment of beauty?
3. Can something unattractive be made beautiful? What examples of this change can you cite?

Each student to create a small table display of "beauty" for his home.

Class may wish to create display for classroom, library, etc.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1.

2. AREAS OF BEAUTY:

    a.

    b.

    c.

3.

4. FACTORY WITH ATTENTION GIVEN TO INTERIOR SURROUNDINGS:

5.

VOCABULARY

urban
rural
suburban
emotional growth
evaluate
beauty
positive
negative
thriving
sensitivity
judgment

MATERIALS NEEDED

Pictorials (either photographs or magazine pictures which depict a variety of environmental settings
Items collected for beauty display
Shoeboxes
Art materials

SUGGESTED BOOKS:

Brooks, Robert THE RUN, JUMP, BUMP BOOK Little, Brown c1971
Apartments are fun but real joy is an afternoon in the park where one and run, jump, and bump.

Vogel, Ray THE OTHER CITY David White c1969
A photographic portrayal of their New York City slum by four boys as a part of a school project. The brief captions are also theirs. Integrated.

Peet, Bill FLY, HOMER, FLY Houghton Mifflin c1969
Restless farm pigeon becomes disillusioned with city life after his encounter with smog, powerlines and unfriendly city birds.

COMMUNITY RESOURCES TO CONTACT:

1. Psychologist:

2. School Nurse:

3.

QUOTE TO DISCUSS WITH CO-OPERATING TEACHERS:

> "What the inner-city child calls home is often a set of rooms shared by a shifting group of relatives and acquaintances - - furniture shabby and sparse, many children in one bed. plumbing failing, plaster falling, roaches in the corner and sometimes rats, hallways dark and dimly lighted, stairways littered, air dank and foul. Inadequate, insanitary facilities complicate keeping clean. Disrepair discourages neatness - - Rickety, shadowy stairways and bad electrical connections take their accident toll. Rat bites are not infrequent and sometimes, especially for infants, fatal...."

National Crime Commission
Report, 1967

NOTES:

IN SATISFYING THEIR BASIC NEEDS People interact wi
their environment. In their everyday living people use resourc
and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

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POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD, MILK)
AESTHETIC SATISFACTION	[illegible]	PROBLEM SOLVING	LEGAL ACTION
[illegible]	[illegible]	INTERNATIONAL ISOLATIONISM	LAWS - AGENCIES
[illegible]	[illegible]	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	[illegible]	[illegible]	[illegible]	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

It is aesthetically satisfying to the individual to improve his immediate environment.

It is pleasing to spend our time in beautiful surroundings.

We can make changes, however small they may be, to better our living conditions.

Most people generally feel good about themselves and their environment when they make such improvements.

When we help to improve our environment we show that we have pride in ourselves.

We can improve our environment not only to make it more beautiful but also to make it a safer place for living.

LEARNING

Students may derive aesthetic satisfaction and accomplishment (after a clean-up, particularly) by talking about the following questions:

1. How do you feel when you walk into a messy room vs. a tidy one?
2. How do you feel when you clean up a mess?
3. How do you feel if a mess reoccurs?
4. How might clean-ups be made on-going?

Panel Discussion Questions:

1. What about a room (area) influences the way you feel about it?
2. What motivates a person to improve his immediate environment?
3. Are these motivation factors temporary? Might they be replaced by other more lasting motivations?

Role-Playing Situations:

Students may act out various situations which point up feelings of accomplishment derived from improving one's environment.

What does the following quotation mean to you?

> "Constant contact with filth and ugliness can be as harmful to aesthetic and moral sensibilities as the pollutants we breathe can be to our bodies."

National Commission of Urban Problems

1. Creative writing stories or poems may be written as a response to this quotation.
2. What words or phrases could replace some of those in the quote in order to serve as specific examples of the meaning intended?

ACTIVITIES

Creative Writing:

Students may enjoy creating fantasy tales or describing actual incidents to such titles as:

"The Biggest Mess In The World"
"The Time Hard Work Paid Off"
"Nobody Will Care If I Don't"
"A good Feeling After A Job Well-Done"

Explain what this means:

lot of food - - lot of rats
less food - - less rats
no food - - no rats

SURVEY:

Pupils to conduct an environmental survey of their immediate block or area.

Survey Preparedness:

1. How might a survey help us to learn about people's feelings?
2. What techniques might we use in our interviews to put people at ease and encourage them to share their feelings with us?
3. Is there a relationship between people's attitudes toward environment and the conditions existing on their block or in their neighborhood?

Survey Procedure:

1. Develop survey form.
2. Use role-playing to demonstrate appropriate communication techniques with area residents.
3. Correlate neighborhood environmental problems to upkeep, housekeeping, etc.
4. How did existing problems evolve?
5. Charts may be made by children to show the survey steps, the results, etc.
6. How might this information be used?
7. Follow up survey with an education program for area residents. (Refer to Sample Survey on reverse side of this folder.)

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. COMMUNITY AREAS OR PROJECTS RECENTLY IMPROVED AND PEOPLE RESPONSIBLE:
    a.
    b.
    c.
2.

VOCABULARY

"aesthetically satisfying"
"feelings of accomplishment"
survey
evaluation
pride
motivation
"aesthetic and moral sensibilities"
dignity
enhance
pleasing

MATERIALS NEEDED

Writing supplies
Survey forms

SAMPLE BLOCK SURVEY

One survey sheet for each building on the block

BLOCK LOCATION: STREETS________________________

STREET:

1) Sidewalk in good condition? Yes____ No____
2) Treelawn clean? Yes____ No____
3) Street clean? Yes____ No____
4) Sewer overflowing? Yes____ No____

FRONT YARD:

5) Front yard free of litter and rubbish? Yes____ No____
6) Property sidewalk and driveway need repair? Yes____ No____

HOUSE REPAIR NEEDED:

7) Porch Yes____ No____
8) Foundation Yes____ No____
9) Basement windows Yes____ No____
10) Doors Yes____ No____
11) All other windows Yes____ No____
12) Siding Yes____ No____
13) Gutters and downspouts connected? Yes____ No____
14) Chimney and roof Yes____ No____
15) Paint job needed? Yes____ No____

BACK YARD:

16) Clean and free of weeds? Yes____ No____
17) Any stagnant water? Yes____ No____
18) Garbage cans tightly covered? Yes____ No____
19) Enough garbage cans? Yes____ No____
20) Yard free of rubbish? Yes____ No____
21) Fences in need of repair or paint? Yes____ No____
22) Shrubbery in need of trimming? Yes____ No____
23) Yard free of fallen fruit from trees? Yes____ No____
24) Vegetable garden in yard? Yes____ No____
25) Are there pet droppings? Yes____ No____
26) Any rain-filled containers? Yes____ No____
27) Garages and sheds in need of repair? Yes____ No____
28) Any evidence of rats? Yes____ No____

A block, neighborhood, and city are only as good as the people want them to be.

Individuals can maintain their properties but this effort is not enough. The smallest unit of conserving a neighborhood and the city is the City Block. All houses in the block are on the same piece of land, only separated by fences, walls, and bushes. The entire block is totally separated from adjacent blocks by streets. The value of property is on the block basis. In order to conserve and prevent blight in a neighborhood, all properties in a block must be maintained and be in good repair. Only when the people in the block band together, can they plan programs for the benefit of themselves, their properties and preserve the valuation of their biggest investment.

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SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

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AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURE, ARTS, AND GOVERNMENT	INTERNATIONALISM VS. ISOLATIONISM	LAWS & AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

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Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

It is each individual's right and responsibility to enjoy and care for public parks, playgrounds, and properties.

Care of public properties is the responsibility of the public.

The "public" includes all people.

Schools are public property.

It is every student's responsibility to care for his school.

Public properties are maintained with our tax dollars.

Sometimes more tax dollars are necessary to care for public properties which have been abused by the public.

When the public abuses its properties, thus necessitating additional repair and maintenance costs, it sometimes becomes necessary to raise taxes.

When taxes are raised everybody's pocketbook is affected.

LEARNING

Students may be interested in putting on a skit pointing out care of public property.

1. Safety precautions
2. Code of behavior

List public properties:

- schools
- streets
- municipal bldg.
- public beaches
- mass transit
- parks
- playgrounds
- museums
- libraries

Questions for exciting discussion:

1. Why "waste" land on parks and playgrounds? Who maintains and pays for them?
2. If adults don't use playgrounds why should they pay for them?
3. How can young people pay their share?

Invite to class the Director of the City Parks Division to discuss the Park System and available recreation facilities.

1. What questions might we like the guest speaker to answer for us?
2. What problems does he have in maintaining the parks?
3. How might we help do our part?

Class Project:

Class to select a park or playground site near the school. (Basketball or swing area)

1. How can we beautify and maintain "our site"?
2. Elicit PTA cooperation
3. City Parks Division will help with tools and/or materials.
4. Who else might be interested in helping us?
5. How might we encourage other students to respect our project?

What other recreation facilities would you like to see inaugurated?

1. Who might be interested in our suggestions?
2. How might we most effectively propose these ideas?

ACTIVITIES

LITTER:

When people discard something (usually small items) in inappropriate places, we say that they are "littering". The Glass Container Manufacturers Institute, Inc. cites the following urban litter statistics obtained through a 22 city study conducted by Strickland-Leggett Research, Inc.

Urban Litter:

55% paper items
18.1% metal cans
10.2% plastic items
4.2% glass containers
12.5% miscellaneous items

The National Academy of Science made a 29 state survey of highway litter.

Highway Litter:

59% paper items
16% metal cans
6% glass containers
6% plastic items
13% miscellaneous items

What do these statistics tell you?

Class Survey:

Experiment: "Who Litters?"
Class to divide into 4 committees and station on each corner of a busy intersection to observe littering.

1. Who litters? Who "dumps"?
2. What was littered?
3. Are there sufficient refuse containers?
4. What can we do to educate people?

Students may survey the school grounds and neighborhood to see if there are enough litter containers. If more are needed obtain donated oil drums from area service stations. Clean and paint the drums with ecological messages. Use as litter baskets.

Write for literature and ideas to:

1. The Glass Container Manufacturers Institute, Inc.; 330 Madison Ave., New York, N.Y. 10017
2. Keep America Beautiful, Inc.; 99 Park Ave., New York, N.Y. 10016

Students may enjoy hypothesizing whether a "Keep The Moon Beautiful" campaign will have to be conducted to combat all the littered refuse our astronauts have left on the moon.

Class may enjoy decorating plain plastic bags to be used as litter bags.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1.

2.

EXPERIMENT:

Obtain sample of local swimming pool water:

To Detect: FREE CHLORINE RESIDUAL IN SWIMMING POOL WATER

1. Put 1/2 inch of chlorinated water into a cup. Add 15 to 20 drops of orthotolidine.
2. Let the solution stand for 5 minutes out of the sunlight. Note color.

To Interpret:

No color = No chlorine
Canary yellow = not enough chlorine
Deep yellow = Satisfactory
Orange red = more chlorine then necessary but it may still be usable in emergencies.
Bluish green = alkaline or hard water
Adding twice as much orthotolidine may provide the desired color development.

VOCABULARY

public
public property
private property
tax dollars
maintain
litter
discard
littering
dumping
rights and responsibilities

MATERIALS NEEDED

Oil drums and paint materials (seek donated items)
Clean-up tools and materials (City Parks Dept.)
Swimming pool water sample
Beaker or cup
20 drops of orthotolidine
Art materials
plastic bags

APPROPRIATE BOOKS:

Thomas, Dawn   A TREE FOR TOMPKINS PARK   McGraw Hill   c1971
The efforts of a boy scout troop to get a Christmas tree to beautify their park. The setting is in the Bedford-Stuyvesent community of Brooklyn, New York. The Scout Troop are all black children.

Shulman, Alix   FINDERS KEEPERS   Bradbury   c1971
When Lisa's brother loses his ball in the park, Lisa, a champion at finding things discovers some odds and ends on statues, under park benches and even in the water fountain in her search for the missing ball.

Ressner, Philip   THE PARK IN THE CITY   Dutton   c1971
Interesting photographs show the changing seasons in scenes of a city park. Integrated.

APPROPRIATE MOVIES:

LITTERBUG (All grades - color - 8 minutes - S.L.)
An animated film concerning the problems caused by litterbugs. Shows the contemptible, yet skillful pest, the Litterbug, who so effectively manages to defile our beaches, mountains, cities, and countrysides. Donald Duck stars as this uninhibited Public Nuisance Number One.

HERITAGE OF SPLENDOR (18 minutes - color - P.L.)
Beautiful scenic views of some of America's recreational facilities from the framework for a study on littering. Interjected into this thought-provoking study of a national blight is a humorous sequence which highlights the irresponsible attitude of the majority of vacationers, picnickers, and travelers.

SWIMMING POOL WATER PURIFICATION:

OPERATION

All modern pools use the same system for water purification that is used for the purification of public drinking water supplies - filtration followed by a bactericide.

1. The pool is filled with water.
2. A pump designed to handle this volume of water continuously draws water from the pool, forces it through a dense filter and returns it to the pool.
3. The filters are filled with either sand or diatomaceous earth (tiny skeletons of single celled marine animals). These filters remove all large particles of matter and some microscopic size material, including bacteria.
4. The water is visibly clean, but must be treated so that it is bacteriologically safe. After leaving the filters and before being returned to the pool, a material that destroys disease causing organisms, usually chlorine, is fed into the water.
5. The pool flow design provides a circulation pattern that is chiefly from the shallow area to the deeper end, to the treatment system and back to the shallow end.

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PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS – AGENCIES
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Through cooperative planning and action **PEOPLE CAN** meet basic needs while **PRESERVING THE QUALITY OF LIFE.**

LEARNING STATEMENTS	LEARNING
Vandalism often aggravates already critical environmental conditions.	What is "vandalism"? How does it deface a community? How do the people in a neighborhood suffer if the community is vandalized?
Decaying neighborhoods are made worse by vandalism.	Can you cite examples of vandalism in our community?
Vandalism often speeds a community toward deterioration.	It might be interesting for the class to contact property owners or shopkeepers victimized by vandalism. -What happened? -Might it have been prevented? -What were the costs involved?
Vandals usually have little pride in themselves and in their community.	
When public properties are vandalized, tax dollars must be used to repair the damage.	FIELD TRIP: 1. Visit sites which have been vandalized 2. Each student should complete his own survey form (see back of this folder) for each site visited.
Prices usually have to go up to pay for repairing demages if a business is repeatedly vandalized.	
Vandalism costs each of us money.	Class to collect news articles 1. Emphasize destruction, waste 2. Why do you think people have to resort to acts of vandalism? 3. What is "looting"? 4. How is the cost of vandalism felt by every consumer? 5. In what constructive ways might potential vandals release their tensions?
	Discussion Topics: 1. Responsibility: Renting vs. Ownership 2. Alternatives to vandalism 3. Prevention of vandalism 4. Vandalism costs money 5.

ACTIVITIES

Community Research Interviews:
Committees to contact each of the following to ask how much money vandalism costs them and consumers:

1. City Parks Division
2. City Recreation Division
3. Maintenance-Board of Education
4. Managers of apartment houses.
5. Art Museum
6. Managers of supermarkets
7. Public Library

Invite to class a police officer to discuss the legal repercussion resulting from vandalism.

1. Ask the officer to cite specific cases to illustrate his message.
2. Students to analyze each case to determine alternatives to vandalism.
3. How does the law treat vandals?
4. Do you think that the penalty is stiff enough for the damage rendered?
5. What problems does the police force encounter in tracking down vandals?

Students may be interested in discussing the various ramifications of the vandalism of invaluable items (e.g. art work by deceased painter) as opposed to vandalizing a street sign. For example:

1. Is there a difference in people's attitudes depending upon whether they rent or own their property?
2. Should there be really?
3. Explain these attitudes as they pertain to you.

Pupils may write slogans and jingles discouraging vandalism and destruction of property.

1. Display in school.
2. Contact local radio stations and request that these jingles be aired as Public Service messages.

What are URBAN CANVASES? Discuss the philosophy behind such projects. How might they affect acts of grafitti, vandalism, destruction in addition to adding charm to an area?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. LOCATIONS OF PUBLIC PROPERTIES WHICH HAVE BEEN VICTIMIZED BY VANDALISM (Field Trip Ideas):

   a.

   b.

   c.

2. SOURCES FOR COMMUNITY RESEARCH INTERVIEWS:

   a.

   b.

   c.

   d.

   d.

VOCABULARY

vandalism
vandals
vandalized
deface
grafitti
abuse
respect
tax dollars
destruction
pride
looting
victimized

MATERIALS NEEDED

Daily newspapers
Survey forms

VANDALIZED SITE SURVEY

Location	Describe the destruction	How has this defaced the property?	Who do you think the vandals were?	What repairs are necessary?

MOVIE WHICH MAY BE RELATED TO VANDALISM:

THE KEY (15 minutes - color)
One of the serious problems facing Americans today is car theft. This film shows how to help prevent it. The film is part of the national campaign being conducted by the U.S. Jaycees in co-operation with Allstate Insurance.
#4265
ALLSTATE INSURANCE COMPANIES
U.S. JAYCEES

COMMUNITY RESOURCES TO CONTACT:

1. City Officials:.
   a. Police Dept.
   b.
   c.
2. Owners of vandalized businesses:
3. Cultural Sources:
   a. Art Museum
   b.

PEOPLE

Only an informed people interacting with their environment can understand environmental interrelationships in order to preserve their environment and their quality of life.

UNIT PAGES

IMPORTANCE OF PEOPLE -

People are the most important part of the environment.. 91-94

PEOPLE POWER -

People in a community can either improve their environment or let it decay...................... 95-98

PSYCHOLOGICAL IMPACT -

Environmental factors can have an emotional and psychological influence upon our personalities... 99-102

APATHY, FATALISM, HELPLESSNESS -

Attitudes such as apathy, fatalism and helplessness can deter environmental improvement....... 103-106

CULTURAL ARTS AND ENVIRONMENT -

Environmental attitudes of the day can be observed in our cultural achievements................ 107-110

POSITIVE ATTITUDES -

Positive attitude and effort are needed in developing on-going environmental improvement programs 111-114

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTES	SOUND [illegible]	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTY	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS - AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS. DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

People are engaged in innumerable activities in our environment.

Every individual and his job are important to the community.

Every individual has the additional responsibility of maintaining a healthful community.

When an environment is unclean or unsafe the people living in it suffer.

LEARNING

Students may list on chalkboard all the different roles which people in the environment assume:

1. Family members
2. Neighbors
3. Mailmen
4. Shopkeepers
5. Truck drivers
6. Garbagemen

Student interviews with workers:

1. What is your job?
2. What do you like, what don't you like about your job?

Scrapbook Contest:

1. People Who Work In Our Neighborhood
2. People Who Help Me To Have Fun
3. People Who I Know

Class might like to play a "Guess-Who" game either by verbal or visual descriptions of people in the environment for the others to guess.

This question might stimulate a fun discussion: What might our environment be like if the people were to suddenly disappear?

Two murals could be drawn to illustrate what an environment might be like with and without people.

What dangers do babies face if left unattended in our homes?

1. Electrical accidents
2. Accidental poisonings
3. Falls

How might we help to protect babies?

Use People Story Chart (refer to back of this folder) to create original tales about people.

Using the class list of people in the environment:

1. Each pupil should divide paper into 4 squares and draw one person with a specific role in each box.
2. Figures can then be cut out and pasted onto mural paper with appropriate additions made in crayon or paint.
3. Cut-outs could also be used to put on a puppet show.

Puppet Show may be used to point out family relationships and environments:

1. Does your whole family live on your street? in your city?
2. Do some of your relatives live in apartments, in houses? How is living different in an apartment vs. a house? Advantages; Disadvantages.
3. How do we keep in touch with relatives and friends who live far away from us?

What makes people happy?
What fun-things might you do to bring you pleasure?
What do you do for fun? Mother? Grandmother?
Where in our environment can you find people -

1. Working?
2. Playing?
3. Studying?
4. Recuperating from an operation?
5. Selling merchandise?

APPLICATION TO LOCAL COMMUNITY

COMMUNITY RESOURCE PEOPLE TO CONTACT:

1.

2.

3.

4.

5.

6.

7.

VOCABULARY

roles
community helper
environment
accidental poisoning
dangerous
recuperating
merchandise

MATERIALS NEEDED

Artwork materials
Scissors
Puppet Show setting
Magazines
Paste

PEOPLE STORY CHART

Use Your Imagination To Create A Story Matching Up One Or Two Items From Each Column.

PEOPLE	FEELINGS
Mother	Cheerful
Neighbor	Hurt
Me	Mad
Sister or Brother	Sad
Grandparent	Happy
Father	Frightened
Friend	Tired

SUGGESTED READING:

Kesselman, Wendy ANGELITA Hill & Wang c1970
Transported from the natural beauty of Puerto Rico to the ethnic area of New York City, a young Puerto Rican girl finds snow the magic substance of which friendships can be made. A little rag doll presents some assistance too.

Binzen, Bill MIGUEL'S MOUNTAIN Coward-McCann c1968
Photographs and simple text tell the story about a huge pile of dirt in a city park and the joy and fun it brings to the children who live near it. Interracial.

Leaf, Munro WHO CARES? I DO Lippincott c1971
Don't be a Spoiler, Dropper, Wrecker - instead help beautify our land because 'you care'.

Hurd, Eidth Thacher WILSON'S WORLD Harper Row c1971
Ecological make-believe a story of the world a little boy paints then realizes he has created many pollution problems. Integrated.

TWO MOVIES OF INTEREST:

OUR COMMUNITY (S.L.)
EVERYONE HELPS IN A COMMUNITY (S.L.)

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

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HUMAN MOTIVATION

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RESOURCES-LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

People in a community can either improve their environment or let it decay.

Residents in an area can control their environmental health by being actively concerned about their neighborhood.

Each of us should survey our own living conditions for evidences of environmental decay.

One individual can help to spark a whole area improvement project.

Once initiated, enthusiasm can be catching.

Students should discuss various neighborhoods in the school locale. Ascertain why one area may be much better cared for than another. List positive resident attitudes.

Continue the previous discussion:

1. Why should you call the Health Department when you witness an unsanitary condition?
2. What do the licenses posted in restaurants and supermarkets mean?
3. Why are merchants in an area anxious to please their customers? What probably will happen if a manager doesn't please his customers?
4. How do people in a community control the success or failure of a restaurant or supermarket?

Class may walk to a local supermarket. Ask store manager to discuss and point out ways his store protects his customers. Have the managers of the meat, dairy, and produce departments talk about inspections, refrigeration, and pesticides, respectively.

Role-Playing Situation:

Flies observed hovering around food in a food shop or restaurant. Notification of management. Conversation with other patrons.

Class may be interested in learning about various food protection laws and how they affect people.

Obtain the young people's book, What Is A Community (Elk Grove, 1967) by Radlaver which describes various communities, their resources and needs. Students are asked what place and responsibility they each have in the community. Class responses may be recorded and discussed.

ACTIVITIES

A Class Committee Yard Survey and Spruce-Up (see back of this folder) should help students to pinpoint environmental conditions which exist in their immediate environment, and then prompt them to exert control over their environment by improving conditions. (Notify parents of activity and solicit their co-operation.)

1. Divide class into committees of four.
2. Each group of four arranges to survey the yard conditions of each committee member.
3. Discuss survey results and Spruce-Up ideas for students and parents to jointly work on.
4. After two weeks, the committees should re-survey each yard. Hopefully, an improvement in conditions will be noted.
5. "Before" and "After" photographs might graphically tell a story in terms of environmental action or inaction.

Class mural, puppet shows, role-playing, and other activities may be stimulated by the delightful little humorous book entitled Sparrows Don't Drop Candy Wrappers (Dodd, Mead, 1971) by Gabel. Simple do's and don'ts tell how each of us can help our environment.

Drum Walk:

Taking a drum along, class may enjoy taking a walk around the neighborhood. Students may take turns beating drum softly in environmentally pleasing areas and more agitatedly when a violation is spotted.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. SUPERMARKET:
   a. Store Manager:
   b. Meat Manager:
   c. Dairy Manager:
   d. Produce Manager:
2. RESOURCE PEOPLE TO CONTACT:
   a.
   b.
   c.
3.

VOCABULARY

improve
decay
neighborhood
attitude
"unsanitary condition"
evaluate
survey

MATERIALS NEEDED

Survey forms
Library books:
Sparrows Don't Drop Candy Wrappers by Gabel
What Is a Community by Radlaver
Drum and sticks
Letters written to parents describing Class-Committee Yard Survey

COMMITTEE YARD SURVEY

Inspect the yard closely. Discuss your observations with the rest of the committee.

	YES	NO
1. Is there evidence of litter, papers, tin cans, etc. in the yard?	☐	☐
2. Is there rubbish (wood, tires, old appliances, etc.) in the yard?	☐	☐
3. Are the garbage cans tightly covered?	☐	☐
4. Are there sufficient garbage cans?	☐	☐
5. Is there evidence of rats, racoons, or stray dogs?	☐	☐

If "yes", where do they hide? ______________
____

	YES	NO
Can they get into the house?	☐	☐

Where? ______________________________

6. Are there:

	YES	NO
-broken basement windows	☐	☐
-holes in the foundation	☐	☐
-doors not tight-fitting	☐	☐
7. Are any environmental improvements needed?	☐	☐

If "yes", what do you suggest?
____
____
____

SUGGESTED MOVIE:

MAN OF ACTION (13 minutes - color - P.L.)
Animated color cartoon on slum prevention and neighborhood conservation. Two opposing characters, the "Devil's Emissary" and "John Q. Citizen", come to grips when a one-time pleasant residential area deteriorated into a noisy, overcrowded slum. The degeneration of the neighborhood is dramatically illustrated and Mr. Citizen proves that something can be done when people are aroused to action.

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RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action **PEOPLE CAN** meet basic needs while **PRESERVING THE QUALITY OF LIFE.**

LEARNING STATEMENTS

Environmental factors can have an emotional and psychological influence upon our personalities.

The conditions surrounding us influence how we feel.

Tension and anxiety may be increased by unpleasant surroundings.

Tension and anxiety may be decreased by pleasant surroundings.

Sensitivity to environmental factors helps us to perceive them more critically.

A significant change in our environmental conditions generally brings about an emotional change within us.

LEARNING

Pupils may list on the chalkboard as many different emotions and feelings as they can recall.

1. When did you experience these emotional responses?
2. What environmental factors triggered these feelings?
3. What environmental changes could have brought about different reactions?

Art work and creative writing can serve to illustrate the above discussion.

Students can do personal research on this topic by carefully observing the emotions of family and friends in terms of cause and effect of environmental factors (e.g. smoke, accidents, weather, dirty conditions, garbage, loud noises).

A large sheet of mural paper may be posted listing two specific environmental situations in the community which directly affect the students. Each student may then add words or phrases which appropriately describe his feelings in each case.

Experiment with the classroom environment and students may vividly describe their emotional reactions to an environmental setting.

e.g. dark room
bright room
noisy room
smelly room
smoky room
cold room
messy room
rigid seating arrangements
open seating arrangements
decorated (balloons, pictures, etc.) vs. stark room

What generalizations can be made as a result of this?

ACTIVITIES

Experiment:

1. Obtain two male hamsters in two identical but separate cages.
2. Observe the hamsters.
3. Drastically alter the environmental conditions in one hamster's cage.
4. Observe the hamster again and discuss observations.
    - a. Does one hamster seem more nervous than the other?
    - b. More friendly?
    - c. More active?
5. Record observations

Guest speaker: Florist or horticulturist

Topic: Environmental Control in Plant Growth

1. Hothouse environment
2. Effects of air and water pollution
3. Role of sunlight on plant growth
4. Recent experiments in talking to and playing music for plants.

Invite to class a child psychologist to discuss, in simple terms, the impact of environment upon personality.

A class discussion on the following questions could be quite deep and revealing:

1. What is "dignity", "self-esteem"?
2. What gives a person a sense of dignity, of personal worth?
3. How might living in undesirable environmental conditions relate to one's feelings of self-dignity?
4. How might one's behavior be, thus, influenced?
5. If a person lives in undesirable living conditions does this, in fact, lower his worthiness as a human being?

Pupils might care to begin keeping personal diaries.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. LOCAL ENVIRONMENTAL SITUATIONS:
    - a.
    - b.
    - c.
    - d.
2. RESOURCE PEOPLE TO CONTACT:
    - a. Psychologist:
    - b.
    - c. Horticulturist:
    - d.

VOCABULARY

emotional
psychological
personalities
tension
anxiety
well-being
dignity
self-esteem
"feelings of worthiness"

MATERIALS NEEDED

Art materials
Writing materials
2 male hamsters
2 identical cages
food

POEM FOR CLASS THOUGHT AND DISCUSSION

IF --- by RUDYARD KIPLING

If you can keep your head when all about you
Are losing theirs and blaming it on you;
If you can trust yourself when all men doubt you,
But make allowance for their doubting too;
If you can wait and not be tired by waiting,
Or, being lied about, don't deal in lies,
Or, being hated, don't give way to hating,
And yet don't look too good, nor talk too wise;

If you can dream---and not make dreams your master;
If you can think---and not make thoughts your aim;
If you can meet with triumph and disaster
And treat those two impostors just the same;
If you can bear to hear the truth you've spoken
Twisted by knaves to make a trap for fools,
Or watch the things you gave your life to broken,
And stoop and build'em up with wornout tools;

If you can make one heap of all your winnings
And risk it on one turn of pitch-and-toss,
And lose, and start again at your beginnings
And never breathe a word about your loss;
If you can force your heart and nerve and sinew
To serve your turn long after they are gone,
And so hold on when there is nothing in you
Except the Will which says to them: "Hold on";

If you can talk with crowds and keep your virture,
Or walk with kings---nor lose the common touch;
If neither foes nor loving friends can hurt you;
If all men count with you, but none too much;
If you can fill the unforgiving minute
With sixty seconds' worth of distance run---
Yours is the Earth and everything that's in it,
And---which is more---you'll be a Man, my son!

SUGGESTED BOOKS AND FILMS WORTHY OF DISCUSSION:

Clark, Ann Nolan ALONG SANDY TRAILS - Viking c1969
The author's poetic prose and the many beautiful color photographs show some of the charm and simplicity of the life of the Papago Indians of the Arizona desert. Regional ecology.

McElroy, Clifford D. Jr. HOUSE WITH 100 LIGHTS McGraw-Hill c1971
New York City inner-city youngsters talk about their environment. Excellent black and white photographs show the garbage, a gutted house, etc.

Carrick, Carol A CLEARING IN THE FOREST Dial c1970
A basic ecological principle is shown in the need for respect between man and nature.

MY OWN YARD TO PLAY IN (7 minutes - P.L.)
Perceptive photography and a candid soundtrack of children playing, singing, and talking create a moving document of a child's life among the tenements of New York City. Implies the need for better play facilities in large cities.

FROM THE OUTSKIRTS OF HOPE (28 minutes - P.L.)
A compelling film that portrays scenes of poverty, bigotry, and discrimination in the U.S. and steps being taken to combat these conditions. Emphasizes that the time to fight poverty is now and the ways to fight it is through action at the community level.

NO TIME FOR UGLINESS (24 minutes - color - P.L.)
Examines the deterioration of both the urban and the suburban environment in the United States, pointing out how indiscriminate construction of living and working places have defaced the landscape. Drawn from many types of communities across the country, negative examples are contrasted with well-planned attractive areas to suggest opportunities for improvement in housing, commercial building design, and recreational facilities.

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LEARNING STATEMENTS

Attitudes such as apathy, fatalism, and helplessness can deter environmental improvement.

When people feel depressed and hopeless it is difficult for them to be optimistic.

It is a good idea to analyze your problems and think of ways, even small ways, in which you can help yourself.

A person's will, hope, and action can help him to INTERACT with the problems of his immediate environment.

Applying the steps of problem-solving generally helps to combat feelings of fatalism and helplessness.

LEARNING

Pupils may hypothesize why people may feel apathetic, fatalistic, and helpless. What factors generally contribute to such unhappy conditions? What effect would this have upon a neighborhood if most of the residents felt this way?

Role-playing would be an excellent method by which students may be helped to FEEL this concept and its many innuendoes. To role-play:

1. Feelings of apathy, fatalism, and helplessness
2. Allowing environmental conditions to deteriorate
3. Process for change

Students may benefit by making a Community Problem Survey to ascertain people's attitudes toward the immediate community.

1. What conclusions can be made?
2. Are your neighbors interested in their environment?
3. How would you describe the general attitudes of your community?
4. Are these attitudes constructive or destructive to community betterment?

Class may decide upon a project designed at reawakening a community to environmental betterment.

1. Posters may be made and displayed in area stores and factory lunchrooms.
2. A P.T.A. program can be put on by the class.
3. Letters to the editor can be written.
4. Contact made to religious leaders, politicians, and area businessmen.

ACTIVITIES

Role-playing and dramatic storytelling may be created about people who live on the following streets:

- Apathy Alley
- Helplessness Highway
- Careless Corner
- Disinterested Drive

How might these same people act if they moved to or visited:

- Positive Place
- Clean-Up Circle
- Spruce-Up Square
- Beauty Boulevard

Explain the following:

1. "We are currently engaged in a Quiet War"
   The Enemy = rats
   War Site = our city
   Ammunition = citizen education and co-operation
2. "Young people may be an influencing factor in solving our solid waste and rodent problems."
   Who discards the garbage at your home?
   Why is covering garbage cans half the battle?
3. "Air and water pollution are inevitably facts of life"

Topics for Creative Writing:

- "The Street Nobody Wanted to Live On"
- "The Club That Changed the Neighborhood"
- "The Time Hard Work Paid Off"
- "A Neighborhood Challenge"
- "The Day The Rats Lost"
- "The Meanest Rat in the World"

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. RESOURCE PEOPLE TO CONTACT:
   a.
   b.
   c.
   d.
   e.
2. COMMUNITY EVIDENCES OF APATHY:
   a.
   b.
3. COMMUNITY EVIDENCES OF ACTION:
   a.
   b.

VOCABULARY

- apathy
- fatalism
- helplessness
- deter
- optimism

MATERIALS NEEDED

- Art materials
- Writing materials
- Survey forms

COMMUNITY PROBLEM SURVEY

1. About how long have you lived in this neighborhood?

2. Do you know anyone (outside your own family) in the community?
   YES ☐ NO ☐

3. About how many people do you know in your neighborhood?
   ___NONE ___1 or 2 ___3 or 4
   ___5 or 10 ___MANY

4. Have you taken part in any neighborhood activity during the past month or so?
   YES ☐ NO ☐

5. How do you feel about your neighborhood? Are there any problems that many of the people who live here have?
   DESCRIBE ____________________
   ____
   ____
   ____

   a. What are they? ____________________
   ____
   ____

   b. Do you think that this is a serious neighborhood problem?
   YES ☐ NO ☐ SOMEWHAT ☐

   c. Do you think it can be solved?
   YES ☐ NO ☐ PERHAPS ☐

SUGGESTED FILMS:

I WONDER WHY (6 minutes - P.L.)
Based on a book by Shirley Burden, this sensitive film on prejudice points out the many beauties and pleasures of life people have in common.

FROM THE OUTSKIRTS OF HOPE (28 minutes - P.L.)
A compelling film that portrays scenes of poverty, bigotry, and discrimination in the U.S. and steps being taken to combat these conditions. Emphasizes that the time to fight poverty is now and the ways to fight it is through action at the community level.

THE CITY AS MAN'S HOME (28 minutes - P.L.)
Surveys the rise of slums, grant public housing complexes mass suburbs, bleak luxury apartments in examining the contention that almost everywhere in our cities communal standards of living are falling even as personal standards of living rise. Analyzes the cause and proposes what the cities might do to improve this. Based on the book, "The City in History" by Lewis Mumford.

FAREWELL OAK STREET (17 minutes - P.L.)
The story of what a low rental housing project meant to the people who once shared aged, sub-standard dwelling. The film shows the Regent Park Development in Toronto, Canada and flashbacks visualize the frightful living conditions in the Oak Street's squalid dwellings. The psychological effect of the filth and squalor on the helpless people - young and old, poor and not so poor who because of the housing shortage were forced to live there - is vividly portrayed. A hard-hitting film to serve as a reminder that slums are a symptom of community sickness and each of us has a responsibility to "cure" such blights in our areas.

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LEARNING STATEMENTS

Environmental attitudes of the day can be observed in our cultural achievements.

Artistic works, each in their own way, generally mirror the materials and images around them.

There are distinct similarities between "environment" and "art".

1. Rhythm
2. Release
3. Density
4. Line, shape, mass
5. Interaction of prime components

City planning helps to assure that environment is asthetically pleasing.

Sensitivity, in perceiving one's surrounding, is a desirable characteristic to develop.

LEARNING

Five committees can be formed to research environmental influences in each of the following areas: art, architecture, music, literature and theatre. (See back page of this folder.)

Conduct an "ENVIRONMENTAL ARTS THINK-IN"

1. What similarities exist between environment and the arts?
2. What examples can you cite of the human need for variety and a release of tension in both the arts and environment?
3. In what ways does a landscape have rhythm?
4. How do feelings of space, density, crowdedness apply to both art, music, and environment?
5. What envidences may be found in the environment of the artistic concept of line, shape, and mass?
6. What examples can you cite of natural shapes in man-made forms?
7. How does "city planning" employ artistic concepts?
8. What are the visual and sonoral effects of dirty water, traffic, delapidated neighborhoods, etc.?
9. In Chicago, an art dealer displayed a metal sculpture behind his shop. Can you explain why rubbish workers hauled the sculpture away? Do you think they would have reacted the same way had they seen the sculpture in a museum?
10. Why would people pay an extraordinary amount of money for recycled art?

ACTIVITIES

"Environment in Art" Creative Projects:

1. Students to collect discarded materials and create "recycled art" projects.
2. Dry, press, and mount flowers along with wood, straw, and stone ("the naturals").
3. Large flat stones may be decorated with ecological signs or polished and combined into "stone sculpture" with other rocks and pebbles.
4. Recycle newspaper into papier mache.
5. Collect photographs of various environmental settings and construct building models for each area utilizing local materials, etc.
6. Create "rubbings" from surfaces of rocks, leaves, tree bark, buildings.
7. Hold a "Sculpture Session" using wet sand, snow, or mud.
8. Beat a drum to the rhythm of high-rise office buildings, ranch houses, playgrounds, lakes, rivers, clouds, traffic, etc.
9. Creative writing (see back side of this folder).
10. Draw pictures of a specific street scene from different perspectives:
    a. Ant's eye view
    b. Giant's eye view
    c. Your eye view
11. Design and build a small creative play area on the schoolgrounds (use barrels, logs, tires, etc.).
12. Locate a place in your community where an "urban canvas", designed and painted by the class, could replace grafitti or an otherwise unsightly wall.

CULTURAL INTERCHANGE

After exposure to paintings, sculpture, symphonies, and other art forms, students might interpret these into dramatics, dance, or other action activity.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. EVIDENCES OF ART FORM IN ENVIRONMENT:
    a. Angle parking:
    b. Street patterns:
    c. Building construction:
    d.
2. CULTURAL FIELD TRIP POSSIBILITIES:
3. RESOURCE PEOPLE TO CONTACT:
    a.
    b.
    c.

VOCABULARY

culture
recycled art
the naturals
eco-architecture
op art
"found art"
indigenous
city planning
grafitti
antiques

MATERIALS NEEDED

Art books and prints
Discarded materials for "recycled art"
Flowers, leaves, wood, straw, etc. to be dried
Large flat stones
Steel wool
Newspaper and papier mache materials
Photographs
Writing materials
Art materials
Sand, snow, or mud

SAMPLES OF ENVIRONMENTAL INFLUENCE IN ARTISTIC WORKS

Art:-Pre-Renaissance - religious subjects
- -Post-Renaissance - landscapes, environmental subjects
- -Contemporary - "op art", "found art", grafitti" - what is it?

Architecture:
- -Frank Lloyd Wright - designed structures to adapt to their environmental setting
- -Cleveland Health Museum - no windows for maximum environmental lighting controls (e.g. exhibits)
- -"eco-architecture" - holes dug in ground and then lined with mud to form house core

Theatre:
- "High-Tor" - Maxwell Anderson (play about a company which runs into opposition when it tries to destroy a mountain)
- "Ben" - (Popular movie about rat infestation)
- "Out of the South" - Paul Green

The trees of the Lord are full of sap,
The cedars of Lebanon which he hath planted,
Where the birds make their nests;
As for the stork, the fir trees are her house.
The high hills are a refuge for the wild goats,
And the rocks for the conies
He appointed the moon for seasons;
The sun knoweth his going down
Thou maketh darkness, and it is night,

Wherin all the beats of the forest do creep forth
The young lions roar after their prey,
And seek their meat from God;
The sun ariseth, they gather themselves together,
And lay them down in their dens.
Man goeth forth unto his work
And to his labor until the evening.
O Lord, how manifold are thy works!
In wisdom hast thou made them all;
The earth is full of thy riches.

The Bible: PSALMS 104

ENVIRONMENTAL BOOKS WITH CULTURAL IMPLICATIONS:

Ross, Etta S. MAN BUILDS TOMORROW Creative Educational Society c1966
Man's work, his education, problems, and cultural beginnings are presented briefly and simply in this sociological study of man himself as a human resource.

Adelman, Bob and Susan Hall ON AND OFF THE STREET Viking c1970
Friendship and play of two boys, Vincent black and Danny white, in a city environment of streets, parks, and apartment house roofs, were recorded photographically and with their actual conversations over a two months period.

Music and Literature: Students may interpret these environmental impressions into stories:

(e.g.) "Fingol's Cave" - Mendelssohn
- "Three Placed in New England" -Ives
- "New World Symphony" (U.S. industrialization) - Dvorzak
- "Cries of London" (street sounds) - VonWilliams
- "Chicago" (song - emphasizes steel mills)
- The Bible (passages on cleanliness and conservation)
- Walden (back to nature - Thoreau
- American Songbag (Sandburg's poems set to music)
- "Chicago" (poem) - Carl Sandburg
- "The Cloud" (poem) - Shelley

SUGGESTED TOPICS FOR CREATIVE WRITING:

- "Music in the Forest"
- "The Most Unusual Paperweight in the World"
- "A Designer's Dream"
- "Finding Art in an Unexpected Place"
- "Straw, Stone, and Sunshine"
- "The TV That Showed Only Environmental Dramas"
- "The Most Unusual Street in Town"
- "The Perfectly Planned City"

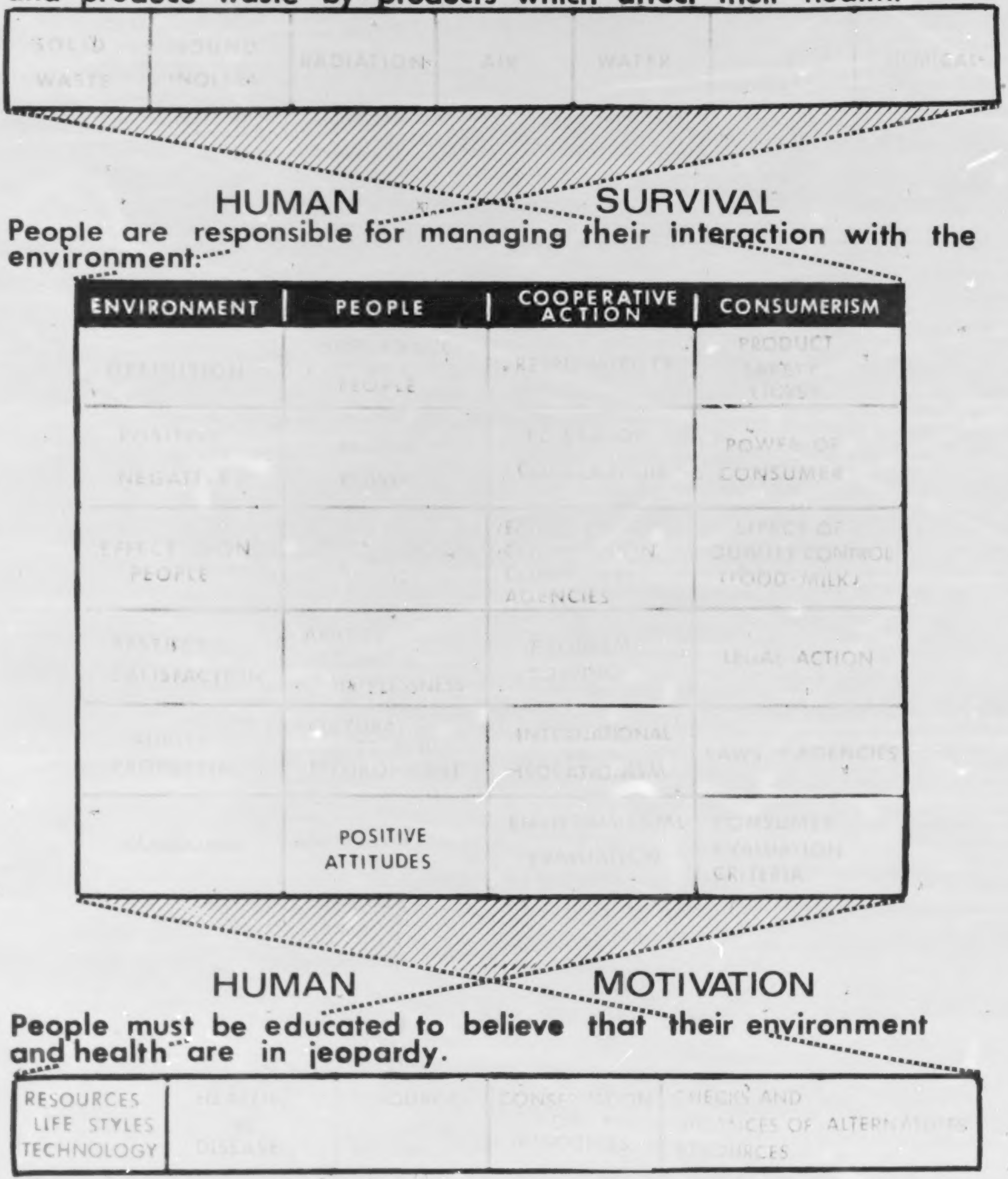
CREATIVE PLAY AREAS IN OUR CITY

1.

2.

3.

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.



SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	[illegible]	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	[illegible] PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE NEGATIVE	[illegible]	[illegible]	POWER OF CONSUMER
EFFECT UPON PEOPLE	[illegible]	[illegible] AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	[illegible] HAPPINESS	[illegible]	LEGAL ACTION
[illegible]	CULTURAL ENVIRONMENT	INTERNATIONAL [illegible]	LAWS & AGENCIES
[illegible]	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH AND DISEASE	[illegible]	CONSERVATION [illegible]	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action **PEOPLE CAN** meet basic needs while **PRESERVING THE QUALITY OF LIFE.**

LEARNING STATEMENTS

Positive attitude and effort are needed in developing on-going environmental improvement programs.

When people care and want to improve their environment, action and results are easier to come by.

Neighborhoods deteriorate when people living in them no longer show concern for property and pride.

In order to see results, each of us must be willing to put forth sincere effort and consciously change some aspects of our behavior.

The foregoing concepts apply to the environmental attitudes of business, industry, and government as well as to individual citizens.

LEARNING

To emphasize that people's behavior can make a difference in environmental conditions, discuss how neighborhoods deteriorate when people living in them no longer show concern for property.

1. Why don't some people take pride in their community?
2. How can we encourage people to take more interest in the environment?
3. How can we encourage our own families to help us?

Role-playing would encourage pupils to "see the other guy's side" in the following situations:

1. Garbage collectors discussing a certain community's habits.
2. Neighbors taking organized approach to rat control.
3. Sanitarian confronting landlord about property upkeep.
4. Family exploring ways to improve environmental conditions.
5. Health Dept. giving advice and help to residents.
6. Dining in an unclean restaurant.

Students may select a meaningful project of an on-going nature. The project should be one necessitating citizen involvement and might be introduced at an assembly or PTA program. For example:

1. Lot clean-ups may be followed by obtaining donated playground equipment for a Tot Lot.
2. Recycling campaign - newspaper, bottles, etc. requires citizen effort.

Class should discuss the following quotation:

> "A man can live and even be happy in the environment of a garbage can... But life under these conditions is little more than survival. Most of man's ability to use his brain for emotional and aesthetic purposes must be cut off, and in some cases it is never regained. He becomes half a man."

Richard S. Latham in From Sea to Shining Sea

ACTIVITIES

Obtain, read, and discuss in class the following books:

- Who Cares? I Do by Munro Leaf
- Clean Streets, Clean Water, Clean Air by Chapin
- The Fight Against Pollution by Daniel Halacy
- A World You Can Live In by William Bixby

Then divide into committees to research and discuss the way this basic concept may be applied by INDIVIDUALS to each of the following environmental areas:

- noise
- air
- water
- safety
- solid waste
- food protection

Extend this activity to apply to INDUSTRY. The following film might be helpful:

THE CASE AGAINST CHICKEN LITTLE (15 minutes - color)

This hard hitting film documents how one company has earned national recognition for its leadership in environmental protection. Scientists, executives and citizens play their real-life roles, demonstrating how people, government and industry can work together to improve the quality of life across the nation.

#4378 WEYERHAEUSER

1. How do industrial environmental problems differ from individual environmental problems? What similarities are there?
2. Why would environmental protection be incomplete if industry and individuals did not each do their respective jobs in preserving environmental quality?
3. What role does GOVERNMENT play in environmental protection?
4. What programs does industry provide in occupational safety?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. EXAMPLES OF LOCAL INDUSTRIAL ENVIRONMENTAL PROBLEMS:
   - a.
   - b.
   - c.
   - d.
2. RESOURCE PERSONS TO CONTACT:
   - a.
   - b.
   - c.

VOCABULARY

individual action
industrial action
governmental action
deteriorate
occupational safety

MATERIALS NEEDED

Survey forms
Project materials
Books and film mentioned

COMMUNITY PROBLEM SURVEY

Of the following, which do you think are our most serious community problems? (Check more than one, if applicable)

1. ☐ Housing (Having decent places to live)
   ☐ Jobs (Finding suitable jobs)
   ☐ Training (Getting training for better jobs)
   ☐ Racial Discrimination (Hostility between races)
   ☐ Money (Money for food, clothes, bills)
   ☐ Schools (Teachers, school staff, condition of buildings)
   ☐ Consumer Problems (Fair prices and quality of products in stores)
   ☐ Police Activity (Police protection)
   ☐ Crime (Controlled)
   ☐ Welfare Services
   ☐ Public Services (Street lights, trash and garbage removal, gas, electricity)
   ☐ Legal Matters (Treatment in courts, finding lawyers)
   ☐ Health (Sickness or ill health, finding doctors)
   ☐ Other (Specify)________________________________

   ____

   ____

   ____

2. What suggestions do you have to help alleviate the problem areas checked above?

   ____

   ____

   ____

   ____

   ____

COOPERATIVE ACTION

Only an informed people interacting with their environment can understand environmental interrelationships in order to preserve their environment and their quality of life.

UNIT PAGES

RESPONSIBILITY -

People are responsible for taking care of their environment.................................... 115-118

POWER OF COOPERATION -

People working together can help to solve the environmental problems of their homes, schools, and communities 119-122

EFFECT OF COOPERATION OF COMMUNITY AGENCIES -

Cooperation between community agencies and area residents can improve the environmental health and safety of a whole city 123-126

PROBLEM SOLVING -

Applying problem-solving techniques to environmental problems provies a method of change..... 127-130

INTERNATIONAL VS. ISOLATIONISM -

Environmental health is of international concern .131-136

ENVIRONMENTAL EVALUATION -

Progress has been made toward the implementation of solutions to environmental problems.......... 137-140

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTES	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	**RESPONSIBLITY**	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCE OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

People are responsible for taking care of their environment.

People are ultimately responsible for creating the many pollutions from which our environment suffers.

People must assume responsibility for caring for their environment.

When we talk about "people", we are talking about you and me, our own families, friends, and neighbors.

Every member of a family should help to care for his home.

Every family on a street should help to care for their street.

Environmental responsibility taken now will help to prevent future environmental problems.

LEARNING

A class discussion on the basic elements and definition of responsibility should revolve around the following:

1. The need to care for home and school environment.
2. The individual's responsibility in keeping his home environment clean.
3. Family roles and how each person's behavior can influence the neighborhood's environmental condition.

Role-Playing Situation:

As a demonstration example of family environmental responsibility, students might act out various methods of home garbage storage including:

1. Preparation of garbage (rinsing cans and containers, tightly wrapping food remains in newspapers, etc.)
2. Storage of garbage (plastic bags stored in raised, tightly covered cans)
3. Family responsibility

Class should create a health and safety checklist to complete and discuss. How does each item relate to individual responsibility?

A class mural can be made based upon the learning statements in this unit.

Interview family members, neighbors, shopkeepers, public service workers, etc. by asking one basic question: "In what ways do you feel that people are responsible for taking care of their environment?"

1. Record all answers.
2. Can any generalizations be made as a result of the interviews?
3. Is any further class action indicated?

ACTIVITIES

Creative writing or art might help to depict the following home situations:

1. Who in your family makes the beds, changes and washes the sheets? If this person stopped doing this, what would happen?
2. Who in your family helps with the dishes? What if nobody did the dishes?

Students to draw contrasting scenes to point up individual responsibility at school:

1. School ground littered with candy wrappers; rat-infested vs. clean site.
2. Cafeteria strewn with garbage vs. clean eating place.

"School Clean-Up Campaign" (Refer to back of folder)

1. Walk around school with Health Department Sanitarian noting weeds, litter, etc.
2. What are possible remedies?
3. Class should make some effort, however modest, towards environmental improvement of the school.
4. "Keep Our School Clean"-type posters can be made and displayed throughout the school.
5. How can environmental improvement be made on-going?

Invite to class community helpers (policeman, fireman, sanitarian, etc.) to discuss their responsibility to the community and what they feel should be the citizens' responsibility to the community.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. COMMUNITY RESOURCES TO CONTACT:
   - a. Police Dept.:
   - b. Fire Dept.:
   - c. Sanitation Dept.:
   - d. Health Dept.:
   - e. Other:
2.
3.

VOCABULARY

responsibility
obligation
reliability
duty

MATERIALS NEEDED

newspapers
"garbage"
plastic bags
garbage containers
art materials
writing materials
mural paper

SCHOOL CLEAN-UP CAMPAIGN (This clean-up campaign was designed and conducted by Wade Park Elementary School, Cleveland, Ohio)

Assignments

1. All pupils can have room assignments.
   (Desks, bookcases, cupboards, window sills, door entrance, etc.)
2. All pupils should be encouraged to return the Jr. Health Patrol Check Sheet. Parent and pupil should sign back of flyer.

ROOM:

117 - 118	Yard area behind 118 (plant grass)
114 - 101	Dust hall (main floor)
103	Dust library
115	Dust outer office
107 - 108	Check walls in halls and east stairway
P6, P7, P8	Check walls, lavatory, water fountain
205	Check 2nd floor east wing walls, boys' lavatory
200	First floor basin, water fountain, walls from 216 to first floor
201	Basement walls, water fountain, lavatory walls
203 - 212	Boys and girls playground entrance-yard
216	Plant grass, clean front yard, sidewalk
214	Sidewalk - 78th Street
314	Yard adjacent to school (west)
215	Walls 2nd floor to landing
301	3rd floor water fountain, basin, walls

Teacher's Assignment Guide:

1. Areas listed are suggested
2. A committee of pupils should clean assigned areas, jobs can be rotated
3. Use half class (gym periods)
4. Aides can supervise
5. Supplies are in basement. See custodian.
6. Parents assisting should work with own children.
7. Each class chooses best time for clean-up effort.

SUGGESTED READING:

Zimelman, Nathan A GOOD MORNING'S WORK Steck-Vaughn c1968
Mitsuo Yamada was to clear the family vegetable garden of weeds for spring planting. But he could not bring himself to disturb a spider's web, a small frog's pond, flowers surrounded by bees, and a bird's nest.

Seuss, Dr. THE LORAX Pandom c1971
Humorous characters and rhymes expose the possible ecological crisis of the future.

APPROPRIATE FILM:

OUR COMMUNITY (Primary Int. - color - 10 minutes - S.L.)
Illustrates community institutions and their services by portraying a day in the life of a ten year old boy. Shows scenes in the dairy, bakery, telephone building, post office, water plant, and many others. Points out that it takes many kinds of people to keep the community active: policeman, craftsmen, professional people, storekeepers, and mechanics.

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

[illegible] WASTES	[illegible]	[illegible]	AIR	WATER	[illegible]	[illegible]

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
[illegible]	[illegible]		[illegible]
[illegible]		POWER OF COOPERATION	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible] EVALUATION	[illegible]

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

People working together can help to solve the environmental problems of their homes, schools, and communities.

The family is the basic unit in our society.

All families are unique because all people are unique ("individualistic").

We should all try to work together as one family.

Joint effort can often bring results which individual effort alone cannot.

Cooperation among people often helps to clarify problems by specifically defining them as they relate to the individual involved.

LEARNING

Students may think of ways in which people are working together towards environmental improvement. Record on chart.

1. How does cooperation help to solve problems?
2. Posters may be drawn to illustrate co-operative environmental activity.
3. Riddles could help to illustrate conclusions (e.g. "I'm thinking of . . . .")

Students may write "Letters to the Editor" urging co-operative environmental action.

1. Letters should be explicit and include a specific problem and specific suggestions for resolving it through co-operative environmental action.
2. Each letter should deal with only one problem.
3. Letters could be sent to local newspapers as well as to national children's magazines.

Two murals can be drawn to show a particular community scene.

"Before" 1. One mural depicting environmental problems (e.g. litter).

"After" 2. The second mural showing people working together to solve these problems (e.g. picking up litter).

Such a mural could stimulate a co-operative clean-up project of the schoolgrounds.

What specific evidences of co-operation can you cite in your own school? your own home? your own community?

ACTIVITIES

Class, divided into two groups, may care to experiment with co-operative learning of a new task vs. individual mastery of the task.

1. Which group had more success?
2. How did people in the co-operative group help each other?

A discussion can be had of the learning statements in light of the following questions:

1. How can a person's attitude either help or hinder co-operative problem-solving?
2. How can family cooperation lower household noise levels?
3. How can family-members cooperate on household chores, waste disposal, and food storage?

Charts listing various tips could illustrate this discussion (e.g. Eco-Tips and Family Co-operation)

A pictorial flow-chart could be constructed to show the various steps involved in solving a specific problem. Emphasis can be placed on those steps which necessitate co-operative action.

1. Why is co-operation vital to such projects as rat control, recycling, or air pollution control?
2. Role-play the hypothetical situation of everyone on a street cooperating on a common problem with the exception of two neighbors.

A sophisticated group of students might care to show how co-operative action in solving one environmental problem can ultimately effect solutions to other ecological situations. (e.g. air pollution restraints and traffic density or solid waste disposal in regard to air and water pollution)

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. CONSULT LOCAL NEWSPAPER FOR STORIES WHICH ILLUSTRATE THE CONCEPT OF CO-OPERATIVE ACTION:
    a.
    b.
    c.
2. NAME AND ADDRESS OF LOCAL PEOPLE (POLITICIAN, MERCHANT, ETC.) WHO WOULD BE INFORMATIVE ABOUT COMMUNITY ACTION PROJECTS:
    a.
    b.

VOCABULARY

co-operation
"joint effort"
co-operative problem-solving
individualistic

MATERIALS NEEDED

Art materials
Letter-writing supplies
Mural paper

A WORD ON CLEAN-UP PROJECTS:

Clean-up projects offer a great deal of aesthetic satisfaction to those who participate in them. "Before" and "After" photographs of the site locations provide visual proof of hard work, accomplishment, and neighborhood improvement.

There are many different kinds of clean-up projects and campaigns which can be undertaken. Ideally, first a survey of an area or side should be made by the young people involved. Based on the survey results, discussion of the specific problems found would determine the kind of clean-up indicated.

One effective project or class interest might spark an entire school clean-up campaign with each class assigned to a specific schoolground location for clean-up attention.

Throughout the school year, the site locations can be rotated to keep interest in the project alive. If classes keep one location, beautification projects such as plantings, painting, etc. might be encouraged. A project such as this one would tend to stimulate school pride and respect for property.

COMMUNITY RESOURCES TO CONTACT:

1. Agencies:

2. People:

3. Places:

APPROPRIATE FILMS:

NEIGHBORS (9 minutes - color - P.L.)
The parable of two people who, after living side by side peaceably, destroy each other over possession of a flower that one day grows on their property line. Employs Norman McLaren's new technique of "pixillation" by which live actors are treated as animated "cartoon figures".

COMMUNITY HELPERS - THE SANITATION DEPARTMENT (11 minutes - color - all grades - S.L.)
A variety of tasks are visualized - trash pickup, sanitary landfill operations, tree trimming, street cleaning and snow removal. Strong secondary theme - Don't be a litterbug!

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	**EFFECT OF COOPERATION COMMUNITY AGENCIES**	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FUTILITY HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTY	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS - AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	OBSOLESCENCE [illegible]	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Cooperation between community agencies and area residents can improve the environmental health and safety of a whole city.

Joint action by people working together can usually yield greater positive results than separate individual efforts.

Most community agencies could not survive without the co-operation of many people.

People should become familiar with the many agencies serving their community.

Most community agencies exist solely to serve the people in their community.

By working together, people on a street or block can help to control the environmental conditions of the area.

LEARNING

What evidences of co-operative agency spirit exist in our community? Be specific.

1. American Cancer Society
2. TB Society
3. City Health Department
4. March of Dimes
5. American Heart Association
6. Citizens for Clean Air and Water
7. Scouts
8. P.T.A.
9. Church groups

Class may contact various agencies and learn of their co-operative spirit and dependence upon area residents.

Role-play Situation:
Students who have researched the activities of various agencies may assume the role of that agency in trying to solve a hypothetical problem or crisis.

Students may call attention to the need for an organized approach to neighborhood conservation and improvement by:

1. Assembly program for parents, P.T.A.
2. Door-to-door campaign
3. Posters in store windows
4. Demonstration of proper way to store garbage
5. Movie on environmental health
6. Skit

ACTIVITIES

Discuss concept of "Street Clubs" and "Block Clubs"

1. What is a Street Club? Block Club?
2. How might Block Clubs play a key role in solving a neighborhood's problems?
3. Why are Block Clubs generally better able to upgrade an area than a few unorganized citizens?
4. In what ways might students work with existing Street Clubs?

Class may undertake survey of all Street and Block Clubs in the school area. Through observation, a correlation may then be drawn between the general condition of an area and the active community participation by citizens in the area.

A poll may be taken of parents and neighbors to ascertain interest in forming Block Clubs where they do not exist.

Student representatives may arrange to interview a Health Department employee for information about the role of the Street or Block Club in upgrading the environmental health of an area.

How might Street Clubs help with each of the following areas of concern:

1. Traffic
2. Littering
3. Outdoor burning
4. Lack of flowers and shrubs
5. Unsanitary neighborhood restaurant
6. Crime on streets
7. Unnecessary noise
8. Roaming dogs

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY:

1. AGENCIES TO CONTACT:

    a.

    b.

    c.

    d.

    e.

    f.

2. COMMUNITY RESOURCE PERSONS TO CONTACT:

    a. President of local Block Club:

    b.

    c.

    d.

VOCABULARY

co-operation
"collective efforts"
individualism
Street Club
Block Club

MATERIALS NEEDED

Letter writing materials
Art materials

FILMS: Each of the following films emphasizes the co-operative aspects of city structure, services and problem-solving.

COMMUNITY SERVICES (Intermediate - color - 11 minutes - S.L.)
Designed to acquaint students with interdependence and specialization of the "service helpers" who work in our modern communities of today. The aspects of "service" and "maintenance" within the community are depicted along with the economics involved.

EVERYONE HELPS IN A COMMUNITY (Primary color - 14 minutes - S.L.)
The story is told using real people and real things combined with an intriguing animated model of a community. The film emphasizes that in a modern community each person specializes in what he can do best. Simple economics is introduced through the payment for goods and services.

THE LIVING CITY (26 minutes - P.L.)
Shows what American citizens can do to improve their cities by replacing and renewing outworn neighborhoods. Based on a study "Renewing Our Cities" by Miles L. Colean, published by the 20th Century Fund.

CITY (Intermediate - color - 11 minutes - S.L.)
Shows the characteristic features of a complex, modern city: its many different types of buildings; its diversity of neighborhoods; major transportation facilities; a huge sprawl of suburban areas; and the city's elected government which provides services such as fire and police protection.

WHAT A TOWN DOES FOR US (Intermediate - color - 10 minutes - S.L.)
When Billy goes to his town hall to buy a bicycle tag, he sees the services provided the community by its government. Billy's tour of the town hall shows how community governments are organized, and how the bicycle tax and other taxes support the community government.

THERE WILL BE A SLIGHT DELAY (28 minutes - color)
This hard-hitting documentary explores America's transportation problems. It zooms in on highways, airports, railroads and urban transit, showing the problems that exist, what is being done about them and spectacular plans for the future.
(Available to 10th grades and higher)
#4184 CATERPILLAR TRACTOR CO.

NOTES:

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	[illegible]	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	ENVIRONMENTAL IMPACT	EFFECT OF CONSERVATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY [illegible] HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCE [illegible]	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF ALTERNATIVES RESOURCES

Through cooperative planning and action **PEOPLE CAN** meet basic needs while **PRESERVING THE QUALITY OF LIFE.**

LEARNING STATEMENTS

Applying problem-solving techniques to environmental problems provides a method for change.

There are definite problem-solving procedures.

The best way to bring about positive action is by planning definite steps which lead to that action.

We all use problem-solving techniques, sometimes without even realizing it.

Basic to methods of change and problem-solving is recognition that a problem exists.

Carefully and specifically defining a problem often helps in its solution.

LEARNING

Students should be encouraged to discuss problems which they have recently had and ways in which they solved them.

Chart the process and action steps involved for solving three or four of the problems discussed.

Class to list environmental problems observed during walk to and from school.

1. Select one problem for study.
2. Apply problem-solving method.

Class, divided into committees, may explore the following topic areas by each group discussing a different problem-solving situation:

1. School accident prevention
2. Littered vacant lots
3. Bicycle safety
4. Home environment
5. Citizen participation in community

What problems do our cities face?
House With 100 Lights (McGraw-Hill, 1971) by C. McElroy, Jr. gives an excellent pictorial view of the inner city environment. Using an opaque projector, pupils may discuss the problems they see.

How does an agency apply problem-solving techniques to an environmental problem?
Invite representative from Air Pollution Control Center to speak to class about the city's work in air quality control.

How is "city planning" a problem-solving approach?
Read: Your Changing City (1969) by Schere
Old Cities and New Towns (1968) by Schwartz

ACTIVITIES

Problem-solving Process and Action Steps:
Class should decide upon a particular neighborhood problem (e.g. nearby vacant littered lot) and then apply the problem-solving process to it.

1. State the problem
    a. How has the problem come about?
    b. Has anything been attempted to solve the problem? How effective have these measures been?
2. What hazards does the problem present to the community?
    a. Who in the community is affected?
    b. To what extent are they affected?
3. What are the present attitudes and habits of people about the problem?
    a. How are these attitudes and habits affecting the problem?
    b. Have these attitudes and habits changed over the years?
4. What would be the goals associated with resolving the problem?
    a. What would be the short and long range specific desired changes be?
    b. How long do you think it would take to resolve the problem?
5. What, specifically, needs to be done to solve the problem?
    a. List as many solutions as you can think of whether or not you agree with them.
    b. What is good, bad about each solution?
    c. Which are the best possible solutions?
6. Do you think that the people in the community would cooperate?
    a. Which people do you think would give the most support? Why?
    b. What would have to be done to get that support?
    c. Which people do you think would be uncooperative? Why?
    d. How do you think that they could be convinced to cooperate?
7. What action steps would have to be taken in order to solve the problem?
    a. What needs to be done?
    b. By whom?
    c. Are any materials needed?
    d. What obstacles do you foresee?
    e. How would you overcome them?
8. How would you measure the success of the program?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. COMMUNITY RESOURCE PERSONS TO CONTACT:
    a. Community Planner:
    b. Psychologist:
    c. Sociologist:
    d. Air Pollution Specialist:

VOCABULARY

problem-solving
change
city planning
solution
attitudes
habits
obstacles

MATERIALS NEEDED

Library books listed
Camera and film

BOOKS AND MOVIES WHICH EMPHASIZE THE PROBLEM-SOLVING PROCESS:

Liston, Robert A. DOWNTOWN Delacorte c1968
A discussion of the most serious urban problems, with the conviction that they can be solved by concerned individuals.

Gay, Kathlyn WHERE THE PEOPLE ARE Delacorte c1969
The author not only states the major problems of the cities but offers reasons why people are drawn to them and how they can be made livable and enjoyable.

Schwartz, Alvin OLD CITIES AND NEW TOWNS Dutton c1968
With Philadelphia renewal and planned new towns as examples, the book examines the problems of making the cities serve the people who live in them.

THE CITY (31 minutes - P.L.)
A survey of the problems of planning community living in America, embodying the views of the American Institute of Planners. Contrasts the turmoil of the planless city with the color and spaciousness of the small planned community. Directed and photographed by Ralph Steiner and Willard Van Dyke. Music by Aaron Copeland.

Schlichting, Harold E. ECOLOGY - THE STUDY OF ENVIRONMENT Steck-Vaughn c1971
Excellent introduction to the study and understanding of ecology. Some simple experiments are included which could lead to a group activity.

Simon, Seymour SCIENCE IN A VACANT LOT Viking c1970
A vacant lot in the inner city can be an excellent starting point for children to begin making simple scientific observations. Its urban setting picturing a racially integrated community gives it added usefulness.

HOW TO LOOK AT A CITY (29 minutes - P.L.)
Against a background of jazz, Eugene Raskin, architect and author, paints a word picture of New York, as seen by lovers, adventurers, and the starstruck; its buildings, old and stately, new and monstrous; paths of old neighborhoods; the bustle of the business world. Points out the three fundamental standards used by architects and planners to judge the quality of a city's neighborhood.

NOTES:

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (COST)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS. ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS. DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

Environmental health is of international concern.

Throughout history, all nations on Earth have been afflicted by disease.

Environmental health concerns affect people no matter where they live.

An environmental health situation in one nation may very likely affect the people of many other nations.

All our nations are part of one planet, Earth.

The Earth may be compared to a spaceship.

The Earth has limited natural resources and limited recycling systems.

Co-operation among nations is vital to preserving our Earth's environment.

As class investigates the following areas, the conclusion can be made that as nations become economically and industrially inter-dependent, their concerns turn to safe-guarding their national health.

1. Radiation fallout
2. Air pollution
3. Pollution of lakes and streams
4. Food supply and use and effect of pesticides
5. Sanitary living conditions
6. Transit and traffic problems
7. Crime
8. Conservation of resources

Panel Discussion Questions:

1. Are today's developing nations undergoing the same environmental cycle as more industrial nations have experienced?
2. What lessons can be learned by studying environmental history?
3. How might local pollution affect world markets? (exportation of food)
4. What environmental similarities exist between industrial nations with dense population centers?

A study of historic plagues and epidemics, of scientists whose discoveries influenced environmental health, or of environmental events would help to indicate to students many cases of international environmental cause and effect.

1. Students may role-play the impact of each of the following on environmental health: Jenner, Pasteur, Koch, Lister, Reed, Spallanzani, Curie, Nightingale, Mary Mallon ("Typhoid Mary"). (Refer to Insert)
2. Assign students to each select an historic event dealing with some aspect of environmental health and prepare a mock newspaper front page headlining facts relating to the event, editorial comment, on-scene reaction, letters to the editor, etc.

ACTIVITIES

"Around the Globe" - Committee Contest

Divide class into 5 committees to find evidence in newspapers and magazines that environmental health is of international concern.

1. Each group keeps own scrapbook.
2. Group with greatest number of appropriate entries wins.

Class might like to select one environmental health problem which is of international concern, and then to discuss this problem through a mock U.N. session with each child representing a different country.

International Correspondence:

1. Student letters can be written to respective U.N. representatives inquiring of their country's position on a specific environmental issue.
2. Class to write to foreign gov't health departments requesting information about their environmental health programs.
3. Write to the World Health Organization for information on their activities in the field of environmental health.

Class should be helped to see relevance of local environmental problems to international concerns.

1. List 3 or 4 major local environmental problems.
2. Students may then each write to mayors of cities around the world asking how their cities handle such concerns.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. COMMUNITY RESOURCE PERSONS TO CONTACT:

   a. Librarian:

   b. Foreign Consuls

   c.

2. AGENCIES TO CONTACT:

   a. F.D.A.

   b.

VOCABULARY

interdependent
developing nation
industrial nation
world market

MATERIALS NEEDED

Globe
Maps
Daily newspaper
Weekly news magazines
Almanac
Encyclopedia
Chart paper
Letter writing supplies

A QUOTE TO DISCUSS:

"Man may be skeptical about following the flight of the dodo into extinction, but the evidence points increasingly to just such a pursuit.

The planet and mankind are in grave danger of irreversible catastrophe if the political structure that now prevails is not drastically changed during the next few decades. We live in a high risk environment, and the trends that create the present level of risk continue to increase the danger and to reduce the possibilities of creatively controlling it."

Professor Richard A. Falk
Princeton University

BOOKS AND FILMS (How might the following illustrate the international aspects of environmental health?)

Billington, Elizabeth T. UNDERSTANDING ECOLOGY Warns c1968
How all living things affect each other and the world they live in.

Munzer, Martha E. PLANNING OUR TOWN Knopf c1964
Current problems with which city planning must cope, including that of city influence upon rural areas.

EXPLANING WORLD RELATIONSHIPS (11 minutes - color - P.L.)
This film demonstrates the effects of science and technology on world relationships. Points out the interdependence of man and nations, and the futility of isolationism. The need for international understanding in solving modern problems is also emphasized.

BROTHERHOOD OF MAN (10 minutes - color - P.L.)
Ruth Benedict's pamphlet, "Races of Mankind", inspired this animated cartoon depicting the differences between races as superficial, accidental, and environmental.

THREE STEPS TO START (26 minutes - P.L.)
The process by which a community begins to confront its problems is shown when a group of parents roused to action by the escapades of their teen-age children discover there is no such thing as an isolated neighborhood problem, that the cooperation of all groups in the community is required, and that no one simple, separate solution is possible.

NOTES:

SUMMARY OF SOME PEOPLE WHO HAVE INFLUENCED ENVIRONMENTAL HEALTH

1. BARNARD, CHRISTIAN (1922-)
   South African heart surgeon, concentrated studies on open-heart surgery and cardiac research. Developed Barnard Valve for use in open-heart surgery. Performed world's first successful heart transplant.

2. CURIE, MARIE (1867-1934)
   Polish-French chemist and physicist, discovered element polonium and radium (1898), and conducted investigations with her husband on radioactivity and radioactive substances. Awarded Nobel Prize in 1903 for physics. In addition, was first woman to win Nobel Prize in chemistry (1911).

3. CURIE, PIERRE (1859-1906)
   French physicist and chemist. Investigated Becquerel rays resulting in the discovery of polonium and radium, with his wife in 1898. Shared Nobel Prize in physics with his wife in 1903.

4. FLEMING, ALEXANDER (1881-1955)
   Scottish bacteriologist and physician who discovered penicillin together with Sir Howard Florry, in 1929 as a result of accidental observation of mold. Developed method to extract penicillin which could be used to destroy malignant bacteria. Used in treatment of syphillis and surface wound. Won Nobel Prize for medicine in 1945.

5. HARVEY, WILLIAM (1578-1657)
   English anatomist and discoverer of the circulation of blood. Discovered valves in veins which control the flow of blood in certain directions. Published Treatise on Generation of Animals, carefully classified observations on reproduction of human beings and other animals.

6. HIPPOCRATES OF COS (460 B.C.-377 B.C.)
   Greek physician considered to be the "Father of Medicine". Gathered and recorded information on medicine which helped in the art of diagnosis and prognosis. Believed that four fluids or humors of the body (blood, phlegm, yellow bile, and blood bile) were the primary seats of disease. Possessed high ideals of medical ethics.

7. JENNER, EDWARD (1749-1823)
   English physician. Discovered small pox vaccine and vaccination.

8. KOCH, ROBERT (1843-1910)
   German physician and bacteriologist. Discovered tubercle bacillus and comma bacillus-cause of cholera. Researched contagion of splenic fever of cattle. In 1905 received Nobel Prize for Medicine.

9. von LEEUWENHOEK, ANTON (1632-1723)
   Dutch microscopist and naturalist devoted self to manufacture of lenses and studied minute structures of plants and animals by means of the microscopes he constructed. Discovered and described red corpuscles of blood which were circular in man but oval in frogs and fish. Described and illustrated spermatozoa through actual discovery by his pupil, Ludwig Hamm.

10. LISTER, JOSEPH (1827-1912)
English surgeon. Lecturer and professor of surgery. Surgeon extoardinaire to Queen Victoria. Introduced antiseptic system into surgery.

11. MALLON, MARY ("Typhoid Mary")
Famous carrier of typhoid fever in New York City between 1906 and 1925. Mary Mallon worked as a cook in various private households and institutions spreading the disease where she handled food. Though she never had the disease herself, she was directly responsible for 57 cases of typhoid fever and three deaths. New York City Health Department suthorities finally apprehended "Typhoid Mary" and detained her for three years before releasing her upon her promise not to work as a cook nor food handler again. However, "Typhoid Mary" showed little regard for the health of others and under various assumed names went from household to household and to maternity hospital continuing to spread the disease until she was again apprehended by health authorities and detained until her death.

12. NIGHTINGALE, FLORENCE (1820-1910)
Philanthropic English nurse who established a training college for nurses. Organized staff of nurses for service in Crimean War and during terrible winter of 1854-1855. Ministered with devotion to suffering soldiers. Reformed hospital conditions and procedures. Called "Lady with the Lamp".

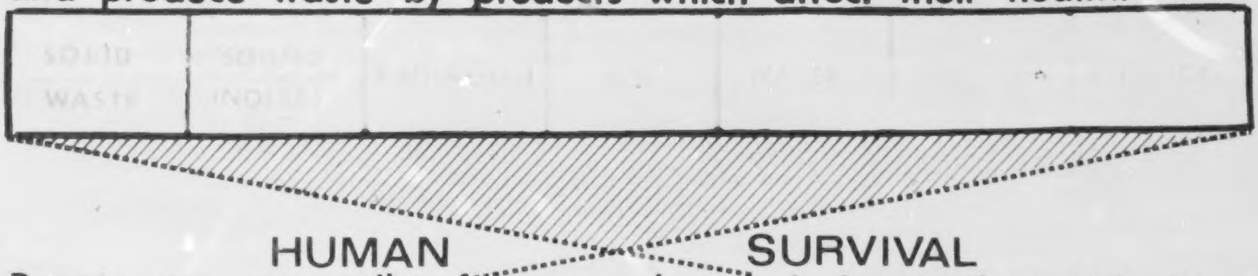
13. PASTEUR, LOUIS (1822-1895)
French chemist and bacteriologist. Born at Dole and received doctor of science degree in Paris in 1847. Became professor of physics and chemistry and conducted research on ferments and fermentation. He came to the conclusion that the process was due to living organisms. "Pasteurization" destroys harmful organisms in milk. Combatted silk worm disease, cholera and anthrax with a vaccination made up of a diluted virus. Regarded as founder of modern science of bacteriology.

14. REED, WALTER(1851-1902)
American surgeon and professor of bacteriology in Army Medical School. He was the Chairman of a committee which investigated the cause of yellow fever, which was discovered to be transmitted by a certain breed of mosquito.

15. SALK, JONAS E. (1914-)
American bacteriologist who improved the influenza vaccine. Developed polio vaccine by injecting polio virus treated with formaldehyde which kept the virus alive long enough for the body to produce antibodies.

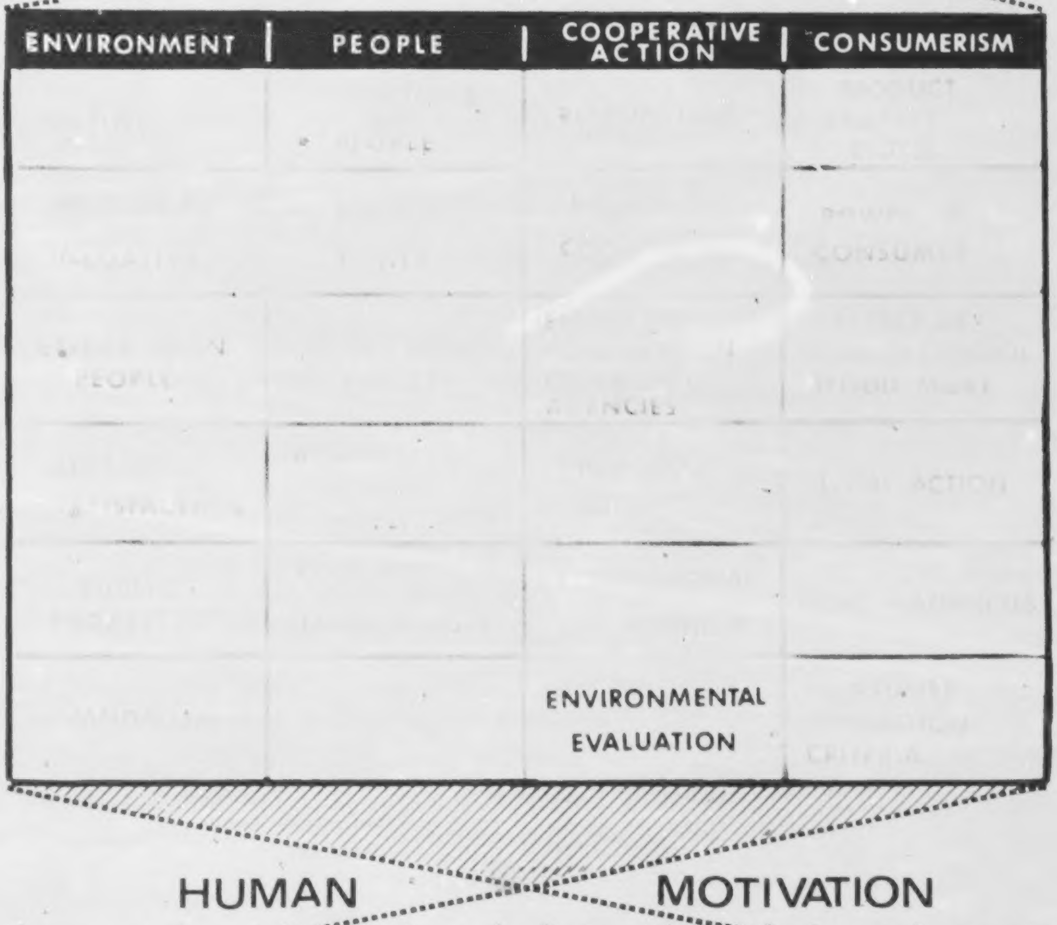
16. SPALLANZANI, LOZZARO (1729-1799)
Italian experimental biologist who showed that air carries microscopic life. Showed that microscopic life can be killed by boiling. He was the first to watch isolated bacterial cells divide. Discovered that bats can dodge strings even when blind and salamanders can replace damaged limbs.

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.


SOLID WASTE
SOUND

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:


ENVIRONMENT
PEOPLE
COOPERATIVE ACTION
CONSUMERISM
PRODUCT
CONSUMER
PEOPLE
AGENCIES
LEGAL ACTION
ENVIRONMENTAL EVALUATION
CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES
LIFE STYLES
TECHNOLOGY

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Progress has been made toward the implementation of solutions to environmental problems.

Environmental evaluation and solutions to environmental problems should ultimately be examined in terms of their effect upon:

1. A healthy person
2. A healthy neighborhood
3. A healthy city
4. A healthy nation
5. A healthy world

Environmental evaluation is a necessary part of environmental improvement.

Making "progress" requires planning.

Solutions to environmental problems are being found by new developing countries as well as by highly developed industrial nations.

As nations become more industrialized, their environmental problems require more sophisticated solutions.

LEARNING

Students should conduct a discussion and attempt to evaluate environmental progress in terms of the health and comfort level of people living in a particular environment.

1. Discussion should evaluate local progress in terms of health and comfort levels for the following environmental areas: air, noise, use of natural resources, water and solid waste.
2. Extend discussion to international progress and include such topics as the following:
   Conservation: programs to protect air, forests, fish, wildlife, soil, and water.
   Water: use of safer pesticides, DDT warnings, stiff legislation relating to dumping and radiation seepage, biodegradables.
   Air: Nuclear Test Ban Treaty (Point out that China and France did not sign; need for international cooperation)
   Noise: ordinances to limit decibel levels considered comfortable and safe
   Solid waste: rat control programs, compacted garbage, sanitary landfill techniques

A class study of sewage treatment would point up environmental technological advancements.

1. Visit a local sewage treatment and/or water purification plant. How have methods advanced within the last 50 years? How has this affected the community health?
2. Discuss enlightened ways of handling sewage and/or water purification by new developing countries.

Making progress requires planning. Why are cities all over the world interested in "city-planning"?

Read: THE CITY-IN THE WORLD OF THE
FUTURE (Refer to back of
this folder for reference book)

ACTIVITIES

In order to assess "progress", students should be aware of the various steps of environmental evaluation. (Refer to back of this folder.)

Class letters requesting environmental progress reports may be written to various national and international agencies.

Compare and contrast a healthy neighborhood in Nigeria with one in the USA.

1. What are the basic similarities?
2. What are the regional and cultural differences?
3. Evaluate health progress in terms of the healthy person, neighborhood, city, nation, and world.

A Poem to Discuss:

> And you live dispersed on ribbon roads,
> And no man knows or cares who is his neighbour
> Unless his neighbour makes too much disturbance,
> But all dash to and fro in motor cars,
> Familiar, with the roads and settled nowhere.

-T.S. Eliot, from "The Rock" in Collected Poems (Harcourt, Brace & Co., 1936)

1. What is the author saying?
2. What do you think prompted T.S. Eliot to make this observation?
3. What is your opinion of his viewpoint?
4. Explain what the author might mean in Line 3. Can you give specific examples in your community to support this statement?
5. What does he mean in Line 5?
6. Relate T.S. Eliot's thoughts to the ultimate solution of global environmental problems.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. WHAT ENVIRONMENTAL PROGRESS HAS BEEN MADE IN OUR OWN COMMUNITY?
   Specific examples:
   a.
   b.
   c.
   d.
2. SEWAGE TREATMENT PLANT:
   Location:
   Manager:
   Phone No.:
3.
4.

VOCABULARY

health
comfort
environmental evaluation
progress
technological advancement
city planning

MATERIALS NEEDED

Daily newspaper
Weekly news magazines
Letter writing supplies
Globe
Maps

ENVIRONMENTAL EVALUATION: Questions to Discuss

1. Why do you feel that environmental evaluation is a necessary part of total environmental improvement?
2. From what viewpoint should an evaluation be conducted -
   - the quantitative state of the environment

     or

   - the health and comfort tolerance of people living in that environment?
3. What, then, is the ultimate goal of environmental evaluation? What major objectives lead to that goal?
4. What specific methods should be used to appraise these objectives?
5. What should be the scope of environmental appraisal?
6. Who should be involved in environmental assessment?
7. Does "continuity" play a role in this assessment? If so, in what way?
8. What interrelationships must one be aware of when undertaking environmental evaluation?
9. Is there any evidence of changed behavior on the part of citizens, industry, and government?
10. How might the individual citizen interpret this discussion in terms of the cost-benefit factor of having his tax and consumer dollars go for environmental improvement?

COMMUNITY RESOURCES TO CONTACT:

1. Agencies:

2. People:

3. Places:

BOOK AND FILMS WITH APPLICABLE IMPLICATIONS:

Hellman, Hal   THE CITY - IN THE WORLD OF THE FUTURE   M. Evans & Co.   c1970
A concise statement on the scientific and engineering expertise and now thinking that must go into planning cities of the future. Photographs, drawings, diagrams.

GOVERNMENT IS YOUR BUSINESS (30 minutes - P.L.)
Convinced of the need for more active participation in government, a young man enters local politics and impresses upon the community the importance of voting in a democracy.

WHERE WILL YOU HIDE? (19 minutes - color - P.L.)
By showing homes blown to pieces, people dying of disease and plague, and the world destroyed by atomic warfare, this film illustrates that there is no alternative for us but peace. It's message can be the basis for intelligent thought and action to prevent the holocaust which it presents with such breathless realism.

THE MINDS OF MEN (30 minutes - P.L.)
A world-circling survey of UNESCO activities over the past 20 years in the less developed countries, in the areas of education, science, and culture. Points out how the sharing of intellectual resources benefits all nations.

CONSUMERISM

Only an informed people interacting with their environment can understand environmental interrelationships in order to preserve their environment and their quality of life.

UNIT PAGES

PRODUCT SAFETY -

We should check all products (toys) before we buy them because some are unsafe 141-146

POWER OF CONSUMER -

The consumer has great power to bring about the changes he desires 147-150

EFFECT OF QUALITY CONTROL -

The food we eat and the milk we drink are checked for cleanliness before they reach our tables 151-156

LEGAL ACTION -

Citizen concern, community action, and governmental legislation help to improve the environmental health and safety of our country 157-162

LAWS, AGENCIES -

Pure food and drug laws and regulations as well as consumer organizations aim at protecting the consumer 163-168

CONSUMER EVALUATION CRITERIA -

Health and safety criteria aid in the evaluation and selection of food, drugs, household and recreation equipment 169-174

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTES	[illegible]	RADIATION	[illegible]	[illegible]	[illegible]	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	**PRODUCT SAFETY (TOYS)**
POSITIVE VS. NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	[illegible]	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	[illegible] ENVIRONMENT	INTERNATIONAL [illegible]	[illegible] AGENCIES
[illegible]	[illegible]	[illegible]	[illegible]

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS	LEARNING
We should check all toys before we buy them because some toys are unsafe to play with. Some toys have sharp edges, tiny objects, and sharp pins or wires which may hurt us. Some toys break easily and expose dangerous objects.	Students may tell of incidents when they were hurt by toys. 1. List on chalkboard cause of each accident. 2. Class should try to categorize list into different hazard classifications: a. sharp edges b. small objects c. sharp pins or wires d. easily broken to expose dangerous objects.
Children should play with toys carefully. Babies have to be protected from unsafe toys. Just because a toy is advertised on TV does not mean that it is safe.	Toys can be brought to class for safety inspection and classfication as "safe" or "unsafe". 1. Is the toy large enough not to be swallowed? 2. Are there small parts which could get stuck in a person's ears, nose, throat, etc.? 3. If this toy breaks would it expose sharp edges? 4. Is the toy made of glass or hard plastic? 5. Could the toy pinch fingers, toes, or catch hair? 6. Are there pins, wires, or nails on the toy?
Most U.S. toy manufactures are now actively engaged in the production of safe toys. Some toys not made by these manufacturers may be unsafe. We should use good judgment when we select toys.	Develop criteria for toy selection. 1. Are toys always as good as TV commercials try to make them seem? 2. What kind of toy do you like best? 3. Which toys allow you to use your imagination? (talking doll vs. rag doll; coloring book vs. tablet and crayons)
	A nurse or doctor might be invited to class to discuss cases where children were injured by toys.

ACTIVITIES

Students may draw pictures to illustrate instances when they (or people they know) were injured while playing with toys.

Students to examine toy advertising:

1. Samples:
    a. Newspapers, magazines, catalogs
    b. Taped TV advertising (Sat. A.M.)
    c. Toy boxes and packaging
2. What to look for:
    a. Safety warnings (Are there any?)
    b. Mode of appeal (How are we being appealed to?)
    c. Authorizations (Who is recommending the toy?)

Class and Individual Letters to Manufacturers:

1. Student toy-type preferences
2. Student suggestions
3. Student criticisms

Parent Involvement

1. Role-playing situations depicting safe play with toys can be worked into an assembly program or P.T.A. presentation for parents.
2. Parent groups should be encouraged to obtain the current list of Banned Hazardous Toys from the Consumer Product Safety Commission (DEB Annex, 21000 Brookpark Road, Cleveland, Ohio) and canvas neighborhood stores in an effort to get such toys removed from shelves.
3. Refer to reverse side of folder.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. CONTACTS TO MAKE:
    a. Local Health Department
    b. Federal Trade Commission
    c. Consumer Product Safety Commission
    d. Nurse or Doctor
    e.
2. FIELD TRIP POSSIBILITIES:
    a. Department Store
    b. Discount Store
    c. Toy Store Demonstration

VOCABULARY

safe
unsafe
hazardous toys
warning
accident
inspect

MATERIALS NEEDED

Varied toy selection including different types, construction styles, materials.

Samples of toy advertising.

BACKGROUND INFORMATION:

Forty percent of all toys are bought for children under five years of age and eighty percent of all toys are bought for children under ten years of age.

The United States Public Health Service has estimated that toys injure 700,000 children every year. This does not include those injured using backyard play equipment.

No law can protect a child completely from all dangers. There are approximately 1,200 toy manufacturers in the country producing an estimated $2.5 to $3 billion in toys each year and there are approximately 83,000 shipments of imported toys each year.

Remember that seals of approval from Good Housekeeping and parents' magazines are only money back guarantees. They are not assurances of safety (or of quality). Another label (UL) you will see on some products is from the Underwriters Laboratories. It's a label which tells you the product or parts of the product on which it appears is reasonably free from fire, electrical shock and related accident hazards.

Lead poisoning is a danger to children. Paint on toys may contain lead which, if chewed, can cause lead poisoning.

Parents by no means, can put all the blame on the toy itself. Often it is not an unsafe toy but the way a child uses it that causes damage. A toy may be unsuited for a child of a certain age.

TIPS FOR TEACHING PROPER USE OF TOYS (from Bureau of Product Safety, U.S. Dept. of Health, Education, and Welfare):

Check instructions. They should be easy to read and understand. Instruct the child in the proper use of toys.

Supervise young children at play. Any toy, if misused, can be dangerous. Remember, there is no substitute for parental interest and supervision.

Check toys periodically for the development of potential hazards such as sharp points, jagged edges, and loose small parts.

Don't leave indoor toys outdoors overnight. Moisture may cause damage. Check outdoor toys and games periodically for potential hazards. Remember, rusting leads to structural weakening of components.

Toys should be put away on shelves or in a toy box where they cannot be broken or cause someone to trip.

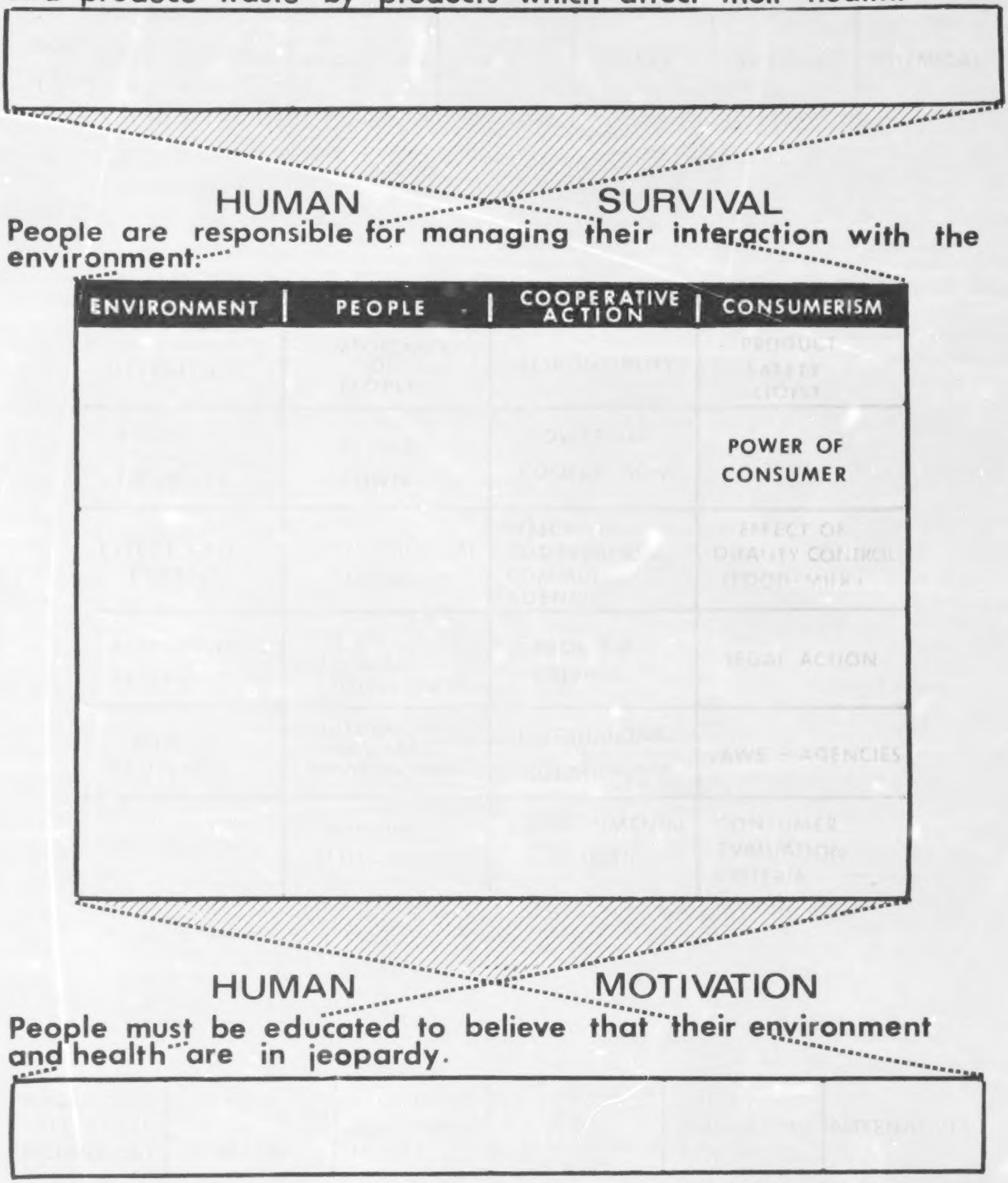
Children should be taught the proper way to connect electric toys by holding onto the rubberized plug, rather than by tugging on the cord itself.

HAZARDOUS TOYS AND CHILDREN

AGE	CHILD LIKES TO	TOYS	SAFETY PRECAUTIONS
Birth to 3 mo.	Suck, listen to voices and music	Your arms and voice, musical mobiles, musical toys, cuddle toys	No plastic bags or sheeting as a baby could suffocate; paints containing lead must not be used on anything on which the baby can suck
4 - 6 mo.	Grasp, kick, laugh, feel and shake things, play peek-a-boo	Bells, dangling toys, high chair, play pen, tin cups, spoons, pot lids, clocks	Sides of crib must be kept up at all times; do not leave baby alone on anything from which he might fall
7 - 9 mo.	Sit, move on their stomachs, throw and bang toys, creep, play pat-a-cake	Bath tub toys, squeaky toys, space to creep, jack-in-the-box, things to explore	See that bars of crib are spaced so baby can't catch head between them; keep small objects out of reach so they can't be swallowed
10 - 11 mo.	Poke and prod, imitate sounds, pull up and lower themselves, mark on a paper	Peg board, cloth books, motion toys, large crayon, baking tin with clothespins	Keep electric cords away from children to avoid their pulling hot or heavy appliance down on top of themselves
13 - 15 mo.	Explore, talk, walk, use fingers, be hugged, try feeding selves, play "where's baby?", fill and empty, respond to words	Babyproof house, blocks, his own dish, cup and spoon, your attention and conversation, a container toy, manipulative toys	Safety gates at head and foot of stairway to avoid falls. Tape or cap light sockets; put electric fan and heaters out of reach; keep all medicines, poisons, cleaning supplies out of reach; pins, buttons, needles and other sharp objects should be locked away; avoid tablecloths that hang over edge of table; keep hot food in center of table, out of reach, and pot handles turned toward back of stove, not hanging over
16 - 19 mo.	Squat down, drag and carry things, use sand, rough house, wave bye-bye	Push and pull toys, soft toys, sandbox, you on the floor, purring toys, hammering toys, toy phone, picture books	

AGE	CHILD LIKES TO	TOYS	SAFETY PRECAUTIONS
20 - 24 mo.	Fetch and carry, dig and mess, have things their way, remember, take things apart, mark on paper, turn pages, fit things together, run, help around the house	A carrying case, little chores, things to take apart, crayon and paper, shelves for his toys, plastic jar with screw lid, dolls, teddy bear	Toys should be sturdy, have no brittle plastic parts and no sharp corners or points; paint should be non-poisonous; toys should not be put together with straight pins, sharp wires, or exposed nails
2 - 3 yrs.	Play alone, run, jump, climb, turn door knob	Blocks, dolls, large picture books, sand box, rocking horse, pots and pans, boats, coloring toys	Put supports on stairs, keep stairs free of objects; do not let them carry glass or knives; teach not to walk in street; check fabrics for non-flammable tag
4 - 6 yrs.	Be self-reliant, use imagination, run, start group games	Climbing apparatus, swings, slides, wagon, paints, puzzles, costumes, construction toys, farm animals, simple games	Teach them to ride bikes and skate on sidewalk, watch for cars in driveway, and not chase ball into street; clothes should give freedom of action and shoes give good foothold; can learn to help safely around home
6 - 8 yrs.	Boys - team sports, games of chance and skill, girls - handi-crafts, games	Trains, construction sets, marbles, sports equipment, paper dolls, jump-rope, bicyles, games, books, skates	Teach traffic rules, safety rules for sports, proper use of any toy that might cause injury
8 - 10 yrs.	Individual skills and hobbies, group games	Difficult construction sets, gym equipment, kites, tools, hobby equipment, puzzles, things to collect	Continue to teach good safety habits; overprotection is not the answer; child must develop habit of sensing dangerous situation
10 and over	Challenging and creative play, hobbies	Sports equipment, electric trains, tools, skates, card games, model kits, magic sets	Avoid toys which produce excessive noise; avoid shooting games such as darts and arrows; check electrical wiring on toys for UL - approval

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.



HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
[illegible]	[illegible]	[illegible]	PRODUCT SAFETY (COST)
[illegible]	[illegible]	[illegible]	POWER OF CONSUMER
[illegible]	[illegible]	[illegible]	EFFECT OF QUALITY CONTROL (FOOD-MILK)
[illegible]	[illegible]	[illegible]	LEGAL ACTION
[illegible]	[illegible]	[illegible]	LAWS — AGENCIES
[illegible]	[illegible]	[illegible]	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

The consumer has great power to bring about the changes he desires.

Consumers have greater power when they unite together in a group.

Consumers have both rights and responsibilities:

Rights:

1. The right to safe products and services.
2. The right to consumer information to aid in making intelligent buying decisions.
3. The right to a variety of services and products at competitive prices.
4. The right to quality services and products.
5. The right to be protected against misrepresentation, dishonesty, and fraud.
6. The right to be heard and heeded as a consumer by both business, industry, and government.

Responsibilities:

1. Alert, informed, responsible consumer behavior.
2. Independence of judgment and action.
3. Directed use of products.
4. Prompt payment of bills.
5. Patronization of only reputable dealers.
6. Voicing consumer needs to industry.
7. Environmental protection through judicious product selection.
8. Legal action, when necessary.

LEARNING

Who is a "consumer"?
Discuss the many different things we "consume".

Role-play the following situations to show that consumers have power especially when they unite together in a group.

1. Meat boycott to lower prices.
2. Consumer demands for unit-pricing.
3. Detailed labeling (refer to back page of folder).
4. Restricted sale of phosphate detergents to alleviate water pollution.

What steps might the consumer take in helping to bring about change? (e.g. conviction, contacts, lobby, boycott)

How might young people exercise their consumer power when purchasing:
toys? magazines? clothing?
food? recreation? movies?

A panel discussion might revolve around the pros and cons of the following in terms of cost-value: Unit pricing, "free" trading stamps, home delivery, "free" shopping bags, "carry-out" boys.

1. Students might take a poll of shoppers at a nearby market to ascertain consumer opinion on items mentioned.
2. How might class use the poll results in a meeting with the store manager?

Why are labels vital to the consumer? (Refer to back of folder)

1. How should labels be read effectively?
2. What information would you like to see on labels?

ACTIVITIES

Consumer Complaints:
1. In what circumstances might a consumer choose to return a purchase?
2. In what instances might a consumer complain? To whom?

Illustrate through role-play:
- A. Returns:
  1. Hazardous toy
  2. Shirt which shrank
  3. Sour milk
- B. Complaints:
  1. Advertized merchandise not available
  2. Reasonable adjustments or returns not made
  3. Services lacking (e.g. not enough checkers in supermarket)
  4. Inadequate labeling (refer to back of folder)

LET THE BUYER

BEWARE

What does this sign mean?
When and where might it be posted?

Student correspondence with industry:
1. Seek information (auto manufacturers and air pollution)
2. Consumer gripes (specific complaints)
3. Suggestions for new products or improvements

Accidental Injury and Poisoning:
1. How might the consumer exercise power to prevent accidental injury? accidental poisoning?
2. How should the consumer exercise his power within his very own home?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. EVIDENCE OF CONSUMER POWER LOCALLY:
   - a.
   - b.
   - c.
2. LOCAL CONSUMER PROTECTION GROUPS TO CONTACT:
   - a.
   - b.

VOCABULARY

consumer
boycott
repossessed
risk

misrepresentation
unit pricing
lobby
trading stamps

MATERIALS NEEDED

Actual items which might be examined, discussed and legitimately returned to stores by students.

BACKGROUND INFORMATION REGARDING LABELS:

The necessary step for the consumer to take, in order to benefit from the activities of industries and government, is to make use of the information provided on the label of products. This label contains information required by the law for your protection - but if you fail to read it, you are losing that protection.

As a consumer, you have a variety of wholesome, truthfully labeled products to suit your tastes and needs. You have a voice in determining the kind, style, and variety of products you receive. Be an intelligent buyer and READ THE LABEL CAREFULLY.

LABELS ON FOOD ITEMS SHOULD INCLUDE:

1. Product name
2. Variety, style and packing of the product
3. Net quantity of the contents
4. Name, address, and zip code of the manufacturer, packer, or distributor
5. Listing of dietary properties
6. Statement of any added artificial coloring, flavoring, or preservative
7. List of ingredients in order of percentage of ingredients
8. Label printed in English.

LABELS AND HANDTAGS ON FABRIC AND CLOTHING SHOULD INCLUDE:

1. Fiber content
2. % by weight of each fiber
3. Manufacturer's name or identification number
4. Country where product is manufactured or processed.

MOVIE ON LABELS:

READ THE LABEL - AND LIVE (Int. Upper - PTA - Color - 9 minutes - S.L.)

On many products we use every day, there are important words on the label-words like DANGER, WARNING, CAUTION. Some of the most common problems that are caused when people do not read labels are dramatically presented. Safe handling practices for medicines, hair spray, paint thinner, insecticides, and other commonly used households products are shown.

NOTES:

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE OR NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY [illegible] HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTY	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS & AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	[illegible] OF DISEASE	RESOURCES [illegible]	CONSERVATION OF RESOURCES	CHECKS AND CHOICES OF ALTERNATIVE RESOURCES

Through cooperative planning and action **PEOPLE CAN** meet basic needs while **PRESERVING THE QUALITY OF LIFE.**

LEARNING STATEMENTS

The food we eat and the milk we drink are checked for cleanliness before they reach our tables.

"Sanitary Laws" govern food wholesomeness.

"Sanitarians" (inspectors) work to enforce the Sanitary Laws by inspecting places where food is:

manufactured
processed
stored
sold
prepared ⎫ for public
served ⎭ consumption

It is important to preserve the cleanliness and wholesomeness of food in order to avoid illness and disease.

Individuals must assume responsibility for keeping the food and milk they purchase in wholesome condition once they bring these items to their own kitchens.

LEARNING

An introductory discussion answering the following questions should bring to light the necessity for checks on food wholesomeness.

1. Why must milk be refrigerated from the time it leaves the cow until you drink it?
2. Why must milk be "pasteurized"?
3. Why is it necessary to have milk "inspected"?
4. How many times is the milk checked before you drink it? Why? What problems might occur at each step?
5. Who is responsible for this inspection?

Apply these questions to meat, bread, and canned soup.

Sequential charts can be made depicting milk and food processing.

What food handling and cooking methods must we practice at home to be sure that the food so carefully processed and inspected continues to remain "fit for human consumption"?

Role-Playing Situations:

1. Louis Pasteur's discovery of bacteria control
2. Farm-to-family milk handling
3. How to help in the kitchen - How not to - - - -
4. "If I were Sanitarian ("food inspector") - - - -

Food Safety Quiz

1. Hot foods should be cooled to room temperature before they are refrigerated? False
2. Damaged or dented cans of food should be rejected? True
3. A tiny taste of a contaminated food can't hurt you. False
4. Food on which mold has formed is poisonous. False
5. It is more important to refrigerate chicken than it is fish. False

ACTIVITIES

Student Interviews with: Cook; Butcher; Sanitarian from Health Dept.; Market Manager; Milkman; Restaurateur; others.

Tests For Food Wholesomeness
To demonstrate the necessity of refrigeration in maintaining food wholesomeness, obtain two samples of each of the following food items, refrigerating one and allowing the other to remain at room temperature. Compare the samples after 3 days and note these indications of spoilage or contamination:

Fish (whole):
1. Are the gills gray or greenish?
2. Are the eyes sunken?
3. Does the flesh pull away easily from the bones?
4. Does a fingernail indentation persist in flesh?
5. Has the fish lost its rigidity?

Raw Shrimp:
1. Has a pink color developed on the upper fins and near the tail?
2. Is an off-odor similar to ammonia detectable?

Milk:
1. Is an off-odor detectable?
2. Has the milk started to curdle?

Meat:
1. Is an off-odor detectable?
2. Is the meat slimy to touch?

See insert for specific food experiments to detect:

- Nitrate in Meat Products
- Sulphites in Meat Products
- Cereal in Ground Meat
- Decomposed Meat

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. DAIRY COUNCIL - many available classroom materials ("Dairy Farm Panorama Kit", "Urban Panorama Kit", etc.) as well as speakers. The Cleveland Dairy Council will schedule a playground visit for students with cow and calf during the month of May.

2. FIELD TRIP POSSIBILITIES (See reverse side of folder):

   a.

   b.

   c.

VOCABULARY

- cleanliness
- sanitary law
- wholesome
- consumption
- bacteria
- poisonous
- inspector
- sanitarian

MATERIALS NEEDED

Two (2) samples each of:
- whole fish
- raw shrimp
- milk
- meat

Refrigerator

See insert for specific materials necessary for each experiment

SUGGESTED FIELD TRIPS:

1. Dairy Farm
2. Milk Processing Plant
3. Food Processing Plant
4. Supermarket
5. Restaurant Kitchen
6. Cafeteria
7. Food Warehouse
8. Frozen Food Plant
9. Butchershop
10. Bakery

APPROPRIATE FILMS:

FARM AND CITY - FORWARD TOGETHER (6 minutes - P.L.)
Shows the interdependence of the farmer and city worker.

OUR FOSTER MOTHER, THE COW (color - primary - 10 minutes - S.L.)
Presents modern dairy farm problems: Housing, feeding, breeding, grooming, selling cattle, calf care, milking. Emphasis is on a clumsy Mrs. Cow herself.

COW (all color - 10 minutes - S.L.)
A leisurely and beauty-filled look at cows: the textures of noses and hides, the shapes and colors of bodies, the ways of the tongue with a blade of grass. Grinding of jaws, chewing of cud, swishing of tails. A newborn calf, licked dry by its mother, tries to stand on collapsible legs, and eventually finds its first meal. (No narration but does have sound effects.)

UNCLE JIM'S DAIRY FARM (Primary - color - 10 minutes - S.L.)
Portrays city children spending a summer vacation on the farm. Emphasis is placed upon dairy farming. But habits of other farm animals are also illustrated.

COMMUNITY KEEPS HEALTHY (Upper Elementary - color - 11 minutes - S.L.)
Shows the community health department inspectors who visit dairies to test milk and visit produce markets, the city workers who clean streets, and water department workers who keep the water pure. Shows that community health depends upon the united efforts of all.

NOTES:

FOOD TESTS FOR CLASSROOM EXPERIMENTATION

1. To Detect: NITRATE IN MEAT PRODUCTS (nitrate is used to preserve red color in meat)

Materials: A test tube, distilled water, medicine dropper, diphenylamine solution (1 part diphenylamine to 99 parts sulfuric acid.)

Technique:
1. Handle acids and chemicals with care.
2. Place a half teaspoonful of hamburger or 5 ml of milk in test tube.
3. Fill tube half full with distilled water, in case of meat but add no water in testing milk.
4. Allow several drops of diphenylamine solution to run down the inside of the tube.

Interpretation: If nitrates are present, a blue color will appear at the level where the liquid and acid solution meet. The color does not last long and soon turns dark brown or black. Nitrates may be introduced into milk by water, if the milk has been watered.

2. To Detect: SULPHITES IN MEAT PRODUCTS (illegal in certain products)

Materials: White paper, dropper bottle of 0.02% aqueous solution of malachite green, toothpick.

Technique:
1. Transfer 1/2 tsp. of suspected meat to a piece of white paper about 4 inches square.
2. Add 0.5 ml. (one dropperful) of malachite green solution to meat.
3. Thoroughly mix for about 1 to 2 minutes with a toothpick.

Interpretation: Meat containing sulfite will decolorize the dye and the meat will resume its bright red color. Normal meat will assume a darker blue-greenish appearance.

3. To Detect: CEREAL IN GROUND MEAT (illegal in certain products)

Materials: Beaker (50 c.c.), bottle distilled water, filter paper, vial of tincture of iodine, medicine dropper.

Technique:
1. Place several ounces of ground meat in 50 cc beaker.
2. Add enough distilled water to thoroughly separate particles.
3. Stir up well.
4. Place some of the floating material on a filter paper.
5. Put several drops of tincture of iodine solution on particles and let stand a minute or two.

Interpretation: The appearance of a bluish or purplish color is an indication of the presence of a starchy material.

4. To Detect: DECOMPOSED MEAT

Materials: Test tube; forceps, reagent composed of one part concentrated hydrochloric acid, one part ether, three parts absolute alcohol

Technique:
1. Handle acids and chemicals with care.
2. Place 2.0 cc of the reagent in a clean test tube and shake.
3. Lower small piece of meat to be tested into test tube with a forceps to within 1/2 inch of surface of reagent. The meat must be defrosted and brought to room temperature before subjecting it to this test.

Interpretation: If ammonia is present, white ammonia chloride fumes will appear around specimen. This test should not be a substitute for the simple odor and visual examination of meat.

5. OTHER IDEAS FOR CLASSROOM EXPERIMENTS:

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION: COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONALISM VS NATIONALISM	LAWS & AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH AND DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CONTROL AND DISPOSAL OF [illegible]	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

Citizen concern, community action, and governmental legislation help to improve the environmental health and safety of our country.

Individual concern underlies all efforts toward environmental improvement.

People must become fully aware of their individual responsibility toward personal and community health and safety before we can expect effective concern and community action.

We can help to further the process of individual responsibility by conducting educational campaigns in our local neighborhood.

Consumer protection and public health bills are continually being introduced before Congress. By notifying his legislators every citizen is taking advantage of the opportunity to voice his approval or opposition to each of these bills.

A great deal of information is available to those who seek it.

Questionnaires may be distributed eliciting student opinion regarding community problems existing within the school building.

1. Areas to be covered could include: litter in halls, condition of locker rooms, vandalism, stealing, nutrition-cafeteria selections available, condition of school grounds, etc.
2. Concept may be extended from school to community.

Invite councilman from ward in which school is located to come to class to discuss environmental needs of his ward. Ask what is being done by city government to meet the needs of the people in the city in terms of environmental health and safety. What should be done but isn't being done?

Students should contact national agencies to learn of ways in which they operate on a national and local level to turn citizen concern and action into legislation and protection. (Addresses may be found on folder insert.) Local chapters of such agencies might be contacted and involvement with them encouraged.

Contact the Federal Consumer Product Information Center (Washington, D.C. 20407) or a branch in your local Federal Building for often free consumer protection materials. An annual subscription to "CONSUMER NEWS" (#4113-7001, $2.00) would give students bimonthly information on government rulings and actions, new consumer laws, public hearings of consumer interest and new federal consumer publications.

ACTIVITIES

Which citizen action groups, agencies, lobbyists, and legislators would be interested in each of the following? Explain your answers in each case.

meat ceiling prices
deceptive packaging
use of purple dye in drugs,
    foods, cosmetics
ban on hazardous toys
noise control proposals
ban on leaded indoor paint
grade standards for canned pears

Class to study one topic (for example, the regulation by the meat inspection division of the U.S. Department of Agriculture of putting a 30% ceiling on the fat content of federally inspected cooked sausage and frankfurters.)

1. Trace and chart the legislative process which preceded the regulation.
2. Contact the various sponsors, legislators, lobbyists involved for their experiences with the legislation.

Class should investigate to learn of consumer protection/public health bills before Congress.

1. Follow the legislation in the newspapers.
2. Contact the congressman who introduced the bill and interview him via personal telephone or letter contact.

After studying the issues, student letters may be written voicing support or opposition to bills in committee.

Such an activity might spark a school and/or community campaign either pro or con on an issue by prompting letters and telegrams to governmental officials. Citizen concern, community action, and governmental legislation then become very real entities.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. LEGISLATORS TO CONTACT (local, state, federal):

    a.

    b.

    c.

2.

VOCABULARY

"citizen action"
citizen action group
legislation
legislator
lobby
lobbyist
public hearing
bill

MATERIALS NEEDED

Developed survey forms
Newspapers
Magazines
Stamps
Appropriate booklets and brochures

LOCAL ENVIRONMENTAL HEALTH AND SAFETY AGENCIES TO CONTACT:

AGENCY HEADQUARTERS FOR CLASS RESEARCH

Air Pollution Control Association, 4400 Fifth Ave., Pittsburgh, Pa. 15213
American Forestry Association, 919 17th St., N.W., Washington, D.C.
Citizens For Clean Air, 40 W. 57th St., N.Y.C., N.Y. 10019
General Federation of Women's Clubs, 1734 N. Street, N.W., Washington, D.C.
League of Women Voters of the U.S., 1200 17th St., N.W., Washington, D.C. 20036
The Outdoor Circle, 1319 Kalakua Ave., Honolulu, Hawaii 96814
Sierra Club, 1050 Mills Tower, 220 Bush St., San Francisco, Calif.

FEDERAL CONSUMER AGENCIES TO CONTACT:

Council of Better Business Bureaus, Inc.; 845 Third Ave., N.Y.C., N.Y. 10022
Chief Postal Inspector, U.S. Postal Service, Washington, D.C. 20260
Office of Consumer Affairs, New Executive Office Building, Washington, D.C., 20506
Consumer and Marketing Service, U.S. Department of Agriculture, Washington, D.C. 20250
Secretary, Federal Communications Commission, Washington, D.C. 20554
Federal Trade Commission, Washington, D.C. 20580
Consumer Product Information, Washington, D.C. 20407
National Highway Traffic Safety Administration, Department of Transportation, 400 7th St., S.W., Washington, D.C. 20591
Division of Interstate Land Sales, Office of Interstate Land Sales Register, HUD Building, Washington, D.C. 20411
Ralph Nader, National Press Building, 1346 F Street, N.W., Washington, D.C. 20004

RESEARCH TOPICS, AGENCIES, AND BOOKS FOR CLASS INVESTIGATION:

Administration on Aging - HEW
Agricultural Research - USDA
Bureau of Family Services - HEW
Bureau of Labor Statistics
Bureau of Public Roads - Commerce
Children's Bureau - HEW
Consumer and Marketing System
Department of Defense
Environment Service - (Science)
Federal Commerce Commission
Federal Department Insurance Corporation
Federal Extension Service - USDA
Federal Home Loan Bank Board
Federal Housing Administration - HUD
Department of Justice
National Bureau of Standards
Office of Economic Opportunity
Post Office
President's Committee on Consumer Problems
Public Health
Social Security
Federal Trade Commission
Federal Food and Drug Administration
Government Printing Office
Department of Interior
Interstate Commerce Commission
Dept. of Treasury - Internal Revenue Service
Veteran's Administration
Truth-in-Lending Legislation, 1967 & 1968
Truth-in-Packaging Legislation, 1966
The Naked Society by Vance Packard
Unsafe At Any Speed by Nadar
The Hidden Persuaders by Packard
The Slum Makers by Robert Tebbel

PERSONAL CITIZEN CONCERN POLL (to prompt awareness of individual responsibility)

YES	NO	SOMETIMES	
☐	☐	☐	1. Do you and your family work together to plan the use of the family income?
☐	☐	☐	2. Do you recognize the needs of others in your family?
☐	☐	☐	3. Do you know where to find consumer information on goods and services?
☐	☐	☐	4. Do you know when a bargain is a bargain for you?
☐	☐	☐	5. Do you ever read the financial section in newspapers?
☐	☐	☐	6. Do you read labels, tags, and seals which are attached to products and keep them handy for reference?
☐	☐	☐	7. Are you aware of consumer protection bills before Congress?
☐	☐	☐	8. Do you make your complaints or satisfactions known to store managers regarding their services and products?

FLOW CHART: FROM INDIVIDUAL TO LEGISLATION

TOPIC	CITIZEN CONCERN	COMMUNITY ACTION	GOVERNMENTAL LEGISLATION

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBLITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS. ISOLATIONISM	**LAWS – AGENCIES**
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Pure food and drug laws and regulations as well as consumer organizations aim at protecting the consumer.

We must protect ourselves by being wise-shoppers.

Many agencies work to benefit the consumer.

Consumers can protect themselves and be discriminating in their purchases by devising their own personal standards of high quality and value.

Consumers who are familiar with laws and regulations are generally wise shoppers.

Wise consumerism involves understanding your needs and seeking out the best ways to meet them.

LEARNING

Committee Work:

Students should research the following topics and discuss their implications in protecting the consumer:

1. Pure food and drug laws on local, state, and federal levels.
2. Origin of milk and meat sold in this city.
3. Meat grades - what do they mean?
4. The processes of homogenization and pasteurization.
5. Steps involved in food processing?
6. Causes and avoidance of food spoilage.
7. Effects of food spoilage upon the consumer's pocketbook.
8. Factors which determine meat prices.

Class Drug Survey:

1. Compare the ingredients on vitamin preparations and aspirin compounds. Chart the findings.
2. What is the difference between patent medicine and prescription medicine?
3. What is the most economical way of buying necessary drugs? (generic vs. drug manufacturer's brand name)

Illustrate by way of a mural:

How does advertising influence us?
What can we learn from advertisements?
When we buy a product, who gets our money?

(e.g.) cheese at 69¢/pound
5¢ to farmer
10¢ to cheese factory
15¢ labor costs
5¢ delivery costs
10¢ packaging
12¢ distribution
12¢ store where sold
69¢

Do we get identical nutritional benefits from name brands vs. store brands? Why do the prices differ? What does "net weight" mean?

ACTIVITIES

A Health Dept. Sanitarian may discuss his inspections of supermarkets and restaurants.

1. What laws govern these businesses?
2. What happens if a store has a violation?
3. What should a consumer do if he observes unsanitary or unlawful conditions?

Discuss Ralph Nader's efforts in consumer protection. Emphasize how his individual initiative, dedication, and stamina have motivated citizen action groups and legislation in behalf of consumerism.

What are the goals of consumer organizations? In what ways do they become involved with laws and regulations? What active consumer groups are in our city? Why is individual initiative necessary even with these groups?

Write to: Consumer Product Information Center
Washington, D.D. 20407

For:

"Forming Consumer Organizations" (4000-0252, 35¢ 32pp. - also gives suggestions for projects)
"Guide to Federal Consumer Services" (400-0073, $1.00, 151pp. - summarizes work and publications of 34 federal departments and agencies)
"How the Consumer Can Report to the Food and Drug Administration" (7700-021, Free, 4pp.)

Consumer Spy Test:

1. Give each spy two paper cups, one with an unlabeled sample taste of chocolate drink and one with a sample of chocolate milk. (Repeat with orange drink and orange juice.) Can pupils discern difference?
2. Discuss differences in butterfat (or juice concentrate) content, labeling, price, etc.)

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. LOCAL AGENCIES TO CONTACT:
    a.
    b.
    c.
2. GUEST SPEAKERS:
    a. Sanitarian:
    b. Druggist:
    c. Supermarket Manager:
    d. Nutritionist:

VOCABULARY

homogenized
pasteurized
net weight
patent as in "patent medicine"
prescription
food processing and handling
food spoilage
enriched
consumer action

MATERIALS NEEDED

Stamps
Reference Materials
Paper cups
Chocolate drink
Chocolate milk
Orange drink
Orange juice

BOOKS AND FILMS OF INTEREST:

Hemphill, Josephine FRUITCAKE AND ARSENIC Little, Brown c1962
First hand accounts of the activities of the Federal Food and Drug Administration which protects us from bad foods and dangerous drugs.

Tannenbaum, Beulah FEEDING THE CITY McGraw Hill c1971
Presented from a scientific point of view, this little text explains how food is transported from rural areas to the city. Experiments provided in back of book.

FOR HEALTH AND HAPPINESS (10 minutes - color - P.L.)
Shows the vital bearing which good nutrition has on the health and happiness of children from infancy to youth. Illustrated with scenes of lively, healthy boys and girls.

A TIME FOR SEARCHING (22 minutes - color)
Dramatizes the importance of agricultural research in assuring a continuing supply of wholesome food for our expanding population. Shows studies underway in animal nutrition, plant, and veterinary science.

PRODUCTION OF FOODS (11 minutes - P.L.)
Deals with the technology and geography of food production by depicting the role of land in production, the methods employed in the production of plant and animal products, and the relation of animal food production to plant foods. Problems concerning the increase in world production of foods are posed and possible solutions suggested.

DAIRY BELT (Int. - color - 16 minutes - S.L.)
Shows the importance of milk production in the agricultural region known as the dairy belt. Compares activities on two dairy farms, one in Wisconsin, the other in the state of New York, with references to physical environment, land use crops grown, and marketing of the milk. Discusses sanitation requirements, transportation of milk to urban areas, and production of other dairy products.

WHAT IT TAKES IS TIME (14 3/4 minutes - color)
This film explains how drugs, antibiotics, and other chemicals found in meat at time of slaughter are the result of improper use of these substances. Inspection procedures and analytic methods for detecting chemical residues in meat are illustrated. Narrated by Chet Huntley.
#3946 Available from: ELANCO PRODUCTS COMPANY, Division of Eli Lilly and Company

NOTES:

CHECKLIST OF CONSUMER PROTECTION AGENCIES

AGENCIES	Publishes Information About Its Activities	Regulates Advertising	Regulates Labels	Inspects	Prosecutes	Educates Consumer	Sets Standards	Does Research	Provides Buying Information	Regulates Trade Practices	Provides Consumer Assistance	Compiles Statistics	Reports Info. to News Media	Serves All Parts Of Our Country
Local Health Dept.														
Food and Drug Administration														
American Medical Association														
Better Business Bureau														
Dept. of Agriculture														
National Bureau of Standards														
Consumer Protection Association														
Federal Trade Commission														
Dept. of Commerce														

CONSUMER ACTION CHART

CONSUMER PROBLEM	REASONS FOR DISSATISFACTION	APPROPRIATE CONSUMER AGENCIES TO CONSULT	EXISTING RELEVANT LAWS	DESIRED CHANGE

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	[illegible]	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD - MILK)
AESTHETIC SATISFACTION	APATHY [illegible] HELPLESSNESS	FINANCIAL [illegible]	LEGAL ACTION
PUBLIC PROPERTIES	NATURAL [illegible] ENVIRONMENTS	INTERNATIONAL VS ISOLATIONISM	[illegible] AGENCIES
VANDALISM	[illegible]	[illegible]	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	[illegible] DISEASE	[illegible]	[illegible] AND [illegible] OF ALTERN[illegible] [illegible]

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Health and safety criteria aid in the evaluation and selection of food, drugs, household and recreation equipment.

Every person is a "Health Consumer"

The consumer must be discriminating in his purchases.

Each individual must formulate his own health and safety criteria for his purchases.

The consumer should be aware of legislated criteria for the products on the market.

Manufacturers produce what people want to buy even if the items do not meet the highest of health and safety standards set.

Consumers should make known to manufacturers and merchants their desire to upgrade health and safety criteria of products.

Perishable foods are easily susceptible to contamination (dairy products, combined salads, meat, fish, poultry, foods using dairy products).

Recreation equipment can have hidden dangers when used improperly.

Drugs should generally not be used without advice from a physician.

LEARNING

Develop criteria in evaluation and selection of consumer goods (e.g. food). Extend discussion to include safe food handling pointers (refrigeration, cooking procedures, etc.)

1. Students may describe or demonstrate various food handling situations and classmates can decide which situation uses healthful procedures.
2. Discuss instances when unsanitary or unsafe conditions were observed. What was unacceptable? What improvements would you suggest?
3. Why is it more difficult to insure proper handling of perishable foods?

Students may research illnesses which may result from eating contaminated food.

1. Milk-borne diseases: tuberculosis, typhoid, brucellosis, septic sore throat, scarlet fever.
2. Meat-borne: parasites (e.g. trichinosis), septemia, pyemia.
3. Other food-borne: salmonellosis, botulism, staphylococcus, Clostridium perfringens.

Class to list various kinds of recreation and household equipment.

1. Committees to collect advertisements of items listed.
2. What criteria should be used in evaluating these products?
3. Are any safety features included?
4. Does the consumer pay more for products with safety features?

Invite to class a representative from the Food and Drug Administration to discuss the safety of drugs and cosmetics. What precautions need to be taken with:

1. hair spray
2. over-the-counter remedies
3. eyelash darkeners
4. cough medicine.

Why does the F.D.A. ban some products? Why might a certain food item be recalled from supermarket shelves?

ACTIVITIES

Murals and charts can be made to illustrate the various food processing procedures:

- pickling
- drying
- canning
- freeze-drying
- freezing
- smoking

1. What is the process?
2. What foods are handled by this process?
3. What is desirable about this process?
4. What are the cost relationships of this process?

(Establish that processing is just one step in preparing a product - be it food, drugs, or recreation equipment - for the consumer.)

Other steps:

- assembling raw materials
- processing
- packaging
- storage
- distribution
- advertising
- display

Make a study of advertisements and the way they influence our health and safety criteria for products.

1. When a product is advertised as "ground beef" is it the same as "hamburger"?
2. In what ways are environmental health areas covered by advertising? (labeling of products - e.g. amount of fat in milk, vitamin C in beverages, etc.)
3. Test product claims (e.g. paper towel, pens, margarine spreadability)
4. Why is it important to have laws regulating standards?
5. Committees to role-play TV commercials with pupils alternating roles of seller, endorser, consumer, listener.
6. Student letters to manufacturers.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. LOCAL F.D.A. OFFICE:
2. LOCAL FEDERAL TRADE COMMISSION OFFICE:
3. SAFETY COUNCIL:
4. ENVIRONMENTAL HEALTH AGENCY:
5. PRODUCT SAFETY COMMISSION:

VOCABULARY

- food-borne illness
- food processing
- food handling
- additives
- preservatives
- "supply and demand"
- public opinion
- "comparison shopping"
- mold
- bacteria
- microorganisms

MATERIALS NEEDED

1. List of available consumer information pamphlets (Federal Book Store or Federal Printing Office)
2. Newspapers - magazines
3. Encyclopedia or other references
4. Art materials
5. TV or radio (or taped ads)
6. Library books (e.g. Consumer's Buying Guide)

In a 1969 statistical analysis from the National Safety Council, it was revealed that for all product-related accidents, 30,000 persons were killed, 110,000 permanently disabled, 585,000 hospitalized, and more than 20 million seriously injured enough to require medical treatment or be disabled for a day or more.

HEALTH AND SAFETY PRODUCT SURVEY

	Name of Product	Manufacturer	Manu.'s Address	Hazard	Stores Researched	Results	Advertising Claims	Date
1.								
2.								
3.								
4.								
5.								

APPROPRIATE FILMS:

WHY FOODS SPOIL (Int. - color - 14 minutes - S.L.)
Introduces the words molds, yeast and bacteria, and then takes up molds for special scrutiny. Microphotography is used in conjunction with children's experiment with growing a mold garden. This and other methods serve to demonstrate that molds are tiny plants which grow and multiply, just as other plants do. By creating conditions in which plants will not grow, molds can be kept out of food.

LET'S KEEP FOOD SAFE TO EAT (all grades - upper - 11 minutes - S.L.)
Steve and Cathy know that eating fresh, clean foods will help them to stay healthy. They wash their hands before each meal, they keep food covered or in the refrigerator, keep flies away from foods, and follow other health habits with food. Their example, together with extreme close views showing what can happen to food when neglected, will encourage pupils to learn and practice the many ways to keep food safe to eat.

DISTRIBUTION OF FOODS (10 minutes - P.L.)
Presents the complex problems of food disbribution on a world wide basis. Shows the problem of family income, maintaining flow of food from Producer to Consumer, the problems of tariffs, etc.

MR. GALEN COMES TO TOWN (28 minutes - color)
An educational and entertaining story about what happens when Galen, a renowned physician of antiquity steps into the 20th century and discovers the fascinating world of pharmaceutical progress. The fine cast features Henry Jones as "Mr. Galen", with Regis Toomey and Colin Male in supporting roles. (Available to 7th grades and Higher)
#4304 PHARMACEUTICAL MANUFACTURERS ASSOCIATION

NOTES ON FOOD SPOILAGE

I. Problem

Food spoilage results in the costly loss of large quantities of food. Satisfactory methods of preparing, handling, storing, and preserving food can prevent this loss. Spoilage ultimately renders food unfit for human consumption. Spoilage becomes apparent as food undergoes changes in its original physical and chemical make-up. Spoilage signs take the form of odor, color, taste, and general physical appearance. Not only does spoilage render food aesthetically unappealing, but it increases the potential for food poisoning to occur.

II. Causes Of Food Spoilage and Deterioration

A. Enzymes

Enzymes are catalysts made up of complex chemical substances formed by living cells which start chemical changes in food by reacting with starch, cellulose, fat, and sugar. Softening, discoloration, and loss of flavor result.

B. Spoilage Micro-organisms

1. Molds - Normally mold growths are harmless although some are capable of producing toxic substances known as myco-toxins. Molds thrive in damp, dark surroundings and appear on foods as colorful, fuzzy, threadlike structures. Some molds are used in food flavoring.
2. Yeasts - Yeasts grow best on tart foods that are in a liquid or semi-solid stage, and are the responsible agents in fermentation producing alcohol and carbon dioxide.
3. Bacteria - Bacteria live and multiply in low acid or bland foods, and unlike molds and yeast, can cause food-borne illness.

III. Avoiding Food Spoilage

A. Proper refrigeration at temperatures between 35° and 40° F.
B. Frozen foods kept at 0° F.

FOOD
STORING CHART

PRODUCT	STORAGE PERIOD (To maintain its quality)	
	Refrigerator 35° to 40° F. DAYS	Freezer 0° F. MONTHS
FRESH MEATS		
Roasts (Beef and Lamb)	3 to 5	8 to 12
Roasts (Pork and Veal)	3 to 5	4 to 8
Steaks (Beef)	3 to 5	8 to 12
Chops (Lamb and Pork)	3 to 5	3 to 4
Ground and Stew Meats	1 to 2	2 to 3
Variety Meats	1 to 2	3 to 4
Sausage (Pork)	1 to 2	1 to 2
PROCESSED MEATS		
Bacon	7	1
Frankfurters	7	1/2
Ham (Whole)	7	1 to 2
Ham (Half)	3 to 5	1 to 2
Ham (Slices)	3	1 to 2
Luncheon Meats	3 to 5	Freezing not recommended
Sausage (Smoked)	7	
Sausage (Dry and Semi-Dry)	14 to 21	
COOKED MEATS		
Cooked Meats and Meat Dishes	1 to 2	2 to 3
Gravy and Meat Broth	1 to 2	2 to 3
FRESH POULTRY		
Chicken and Turkey	1 to 2	12
Duck and Goose	1 to 2	6
Giblets	1 to 2	3
COOKED POULTRY		
Pieces (Covered with Broth)	1 to 2	6
Pieces (Not Covered)	1 to 2	1
Cooked Poultry Dishes	1 to 2	6
Fried Chicken	1 to 2	4

FOOD TESTS FOR CLASSROOM EXPERIMENTATION

1. To Detect: VITAMIN C IN BEVERAGES

Materials: Measuring cup, teaspoon, dropper, cornstarch, water, tincture of iodine, beverages (tomato juice, orange juice, HiC, etc.)

Technique:
1. Heat 1 cup of water and 1 teaspoon cornstarch until dissolved.
2. Add 10 drops of solution to 2 cups of water.
3. Add 2 drops of tincture of iodine.
4. To test solution, add 8 drops of a beverage.
5. Repeat process for each beverage to be tested making sure to use regulated amounts of test solution and test beverage.

Interpretation: A deepening shade of blue indicates amount of ascorbic acid present.

2. To Detect: MILK FAT IN MILK OR CREAM

Materials: Quart jar, lactic acid, heavy cream, spoon, funnel, cheesecloth.

Technique:
1. Add 1 c. heavy cream to jar
2. Add 3 drops lactic acid
3. Shake vigorously until fat particles are noticeable
4. Strain mixture.
5. Put cheesecloth inside funnel and funnel inside jar.
6. Squeeze all the liquid into the jar.

Interpretation: Fat particles will remain in cheesecloth. (Fat can be added to cold water for exaggerated evidence.)

3. To Detect: PROTEIN IN FOOD; STARCH IN FOOD; SEPARATING CURDS AND WHEY; BENEDICT'S TEST; FEHLING'S TEST; AND OTHER FOOD AND MILK TESTS.

Descriptions of these tests may be found in the following excellent source intended for classroom usage.

The National Dairy Council (111 North Canal Street, Chicago, Illinois 60606) and its local offices, distribute the booklets: "Taking Milk Apart" (teacher's manual) and the corresponding student's booklet, "Let's Take Milk Apart".

CONSERVATION

Only an informed people interacting with their environment can understand environmental interrelationships in order to preserve their environment and their quality of life.

UNIT PAGES

RESOURCES, LIFE STYLES, TECHNOLOGY -

The availability of natural resources cannot always keep up with society's life-styles and needs 175-178

HEALTH VS. DISEASE -

Throughout history environmental, technological, religious, and/or social factors have influenced the quality of life and the quality of health of people 179-190

RESOURCES, USE AND MISUSE -

A society may use its resources wisely or misuse them through wasteful activities 191-196

CONSERVATION OF RESOURCES -

Co-operative conservation action must occur if we are to preserve our resources and maintain a quality of life 197-204

CHECKS AND BALANCES -

A system of checks and balances in conservation of resources is necessary in order to maintain the existing quality of life 205-216

ALTERNATIVES -

Our society may destroy its living and habitable environment unless our people carefully choose environmental ALTERNATIVES...................... 217-232

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment.

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS. NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDE	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

The availability of natural resources cannot always keep up with society's life-styles and needs.

The life style and needs of people are constantly in an interrelated process of change.

The earth's resources are limited.

People constantly redefine their needs.

Most people in our society are no longer satisfied with merely the fulfillment of their basic needs (food, clothing, shelter).

New technology utilizing available resources helps people to meet their changing needs and desires.

Technology and resources cannot always keep pace with people's needs.

Science and engineering must research substitute resources in order to meet society's needs.

People must seek alternatives - either by changing their needs or by finding a substituted mode of behavior in meeting these needs.

The law of supply and demand illustrates the way in which people monetarily pay for their misuse of natural resources.

As resources dwindle, the quality of life deteriorates.

As the quality of life deteriorates, the quality of health deteriorates.

When the quality of health deteriorates, EVERYONE pays.

In order to ultimately survive, people must conserve their resources, select appropriate technological alternatives, or modify their needs.

In the process of seeking new resources for satisfying their needs, society has extended its search into outer space.

Through Earth Satellite Stations (ERTS - Earth Resources Tracking Stations), society can locate new resources on Earth.

Through recycling and new advances in technology, people are beginning to more wisely use available resources.

People are just beginning to recognize the importance of modifying their needs and supporting conservation measures.

LEARNING

In order to develop an understanding of the complex inter-relationships which exist between resources, life-styles, and technology, students should research and discuss each of the following topics:

- definition and examples of "resources" "life-styles", and "technology"
- the general availability of various resources
- distinguishing characteristics of past and present life styles
- factors which encourage technological advancement
- the law of supply and demand as it relates to use of resources in technological endeavors
- the search into outer space for new resources
- the availability of resources as it affects the quality of life

Students should give consideration to defining the expression "quality of life"

1. Every student should engage in deep thought before answering the following questions:
   - What constitutes a good life?
   - What do you want out of life?
   - What factors are you considering in your answer?
2. An atmosphere of honesty and acceptance must be developed for this discussion to be effective and for students to share deep feelings.
3. How do resources and technology enable a person to interrelate physical, emotional, and psychological needs? Trace the factors necessary for each student to attain the life style of his choice.
4. In what ways would each of these life styles have to be altered if certain resources (a/o technology) were not available?
5. Would these projected life styles have been possible 200 years ago? Why or why not? What might influence their reality in the future?
6. What pollution factors might be a result of these life styles?
7. What role does education play?

Class should define the "basic needs" of people. How do various life styles meet these needs?

ACTIVITIES

CHART SERIES

1. On a large chart, show the interrelationships between the basic needs of people and the resources and technology available to meet these needs during certain periods in history. For example:

NEEDS	SHELTER	FOOD	CLOTHING
RESOURCES	Lumber		
ORIGIN	Trees		
TECHNOLOGY	Mills		

2. On another chart, compare education, transportation, tools, and communication at various times in history.

ERA				
1. Caveman				
2. Medieval				
3. Colonial				
4. Industrial Revolution				
5. Modern Man				
6. Future Man				

Committees might be formed to investigate how each of the following products were made during each of the eras studied:

furniture
toys
dresses/trousers
cutting tools
dishes
toothbrushes

1. What resources would be needed for each?
2. What technology was available to make the product?
3. What production steps were followed?
4. What was the comparative life of the product?
5. What became of the product after it had outlived its usefulness?
6. How might each of the items studied be recycled?

DISCUSS

1. Would "modern man" be satisfied with the education, transportation, tools, and communication of the past?
2. What factors might influence his current needs and desires?
3. With natural resources at a premium, what alternatives might people have to seek?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. FIELD TRIP IDEAS:
    a. Museum of Natural History
    b.
2. PEOPLE TO CONTACT:
    a. Curator of Museum of Natural History
    b. History Teacher (high school, college)
    c.
    d.

VOCABULARY

resources
natural resources
life style
technology
"quality of life"
"basic needs"
conserve

MATERIALS NEEDED

Research materials, historical
Art supplies and mural paper
Shoeboxes or other boxes for dioramas
Chart paper
Research materials on Amish

SUGGESTED BOOKS AND FILMS

There is a wide selection of books and films available to enrich this unit. The following are a few materials which would serve well to illustrate the interrelationships which exist between resources, life styles, adaptation, and technology.

Milgrom, Harry ABC OF ECOLOGY Macmillan c1972
An alphabet book - each word relating to some aspect of the environment - a photograph depicts such things as "s is smoke"; "v is vacant lot"; etc.

Bendick, Jean ADAPTATION Watts c1971
Asks questions and presents problems on the adaptation of living things to our polluted environment. Integrated.

Howell, Ruth A CRACK IN THE PAVEMENT Atheneum c1970
An introduction to the very young of living things (plant and animal) in the city. Could be shared with city children to help them become aware of the many living creatures and plants they may never notice. Black children.

Hungerford, Harold R. ECOLOGY THE CIRCLE OF LIFE Children's Press c1971
This introduction to the study of ecology deals with the plant-animal food chain, and the growing problems of our environment.

Parnall, Peter THE MOUNTAIN Doubleday c1971
Vivid and expressive picture book telling the story of what is happening to many of the remaining wilderness areas of this country.

Pringle, Laurence THE ONLY EARTH WE HAVE Macmillan c1969
Man's need to learn about living with nature.

Preschet, Bernice TURTLE POND Scribner c1971
A nature lesson in survival and self-preservation of eleven baby turtles in their journey to the pond.

WHAT IS ECOLOGY? (Color - 11 minutes - S.L.)
This film interprets the meaning of the science that deals with interrelationships between living plants and animals and their environment. Describes aspects of the physical and living environments that exist in a community and both explains and exemplifies the term "fiome".

BOOMSVILLE (10 minutes - P.L.)
Illustrates without narration what man has done to his world, from the time of the settler's arrival in a rustic land to man's first landing on the moon.

ENDURING WILDERNESS (28 minutes - color - P.L.)
Scenes of wilderness splendor make an eloquent plea for the creation of national parks as reserves and sanctuaries in regions now feeling the impact of civilization. A minimum of narration.

HOUSE OF MAN - OUR CHANGING ENVIRONMENT (Upper - color - 17 minutes - S.L.)
Reveals the waste of resources in cities, woodlands, farmlands, and the pollution of river waters and of the air. Comparison is made between progress through wasteful methods, and through the intelligent preservation of resources. The film emphasizes that in "The House of Man" - the planet Earth - it is necessary to weigh values conservation vs. destruction.

PARADISE POLLUTED (Int. Upper - color - 15 minutes - S.L.)
Film opens with brief scenes of beauty in our environment and shows how man is turning it into a slum with little respect for the feelings of others or the dangers to the health of his fellow citizens.

THE RIVER (30 minutes - P.L.)
A dramatic documentary film of the Mississippi River - what it has done and what man has done to it. A persuasive indictment of our practices of the past and what we should do in the future if we are to avoid soil and lumber loss. Produced by Lorentz and photographed by Willard Van Dyke. Musical score was written by Virgil Thompson. A film classic.

URBAN SPRAWL (15 minutes - color - P.L.)
Aerial views show the pattern of recent urban growth in the United States. Discusses the problems created by urban sprawl and describes the factors that must be considered to make the best use of land space and to meet the total needs of people.

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBLITY	PRODUCT SAFETY (TOYS)
POSITIVE VS NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	**HEALTH VS. DISEASE**	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Throughout history, environmental, technological, religious, and/or social factors have influenced the quality of life and the quality of health of people.

A society's quality of life may be observed by the standard of living shared by the majority of its population.

The higher the standard of living shared by the majority of a population, the higher the quality of health generally enjoyed by that society.

The quality of life, and the resultant quality of health, is directly related to the availability of natural resources and to the technology developed to utilize these resources for the benefit of humankind.

As resources dwindle, a society's standard of living and quality of health may become jeopardized.

All people in a society suffer when the quality of health deteriorates.

Certain diseases and health and safety hazards may be associated with where a person lives and the job at which he works.

Throughout history, science has combatted environmental health deterioration through the development of technological advances in the study, treatment, and prevention of diseases (i.e. science of epidemiology, biostatistics, immunology, microbiology, environmental health).

People, both individually and collectively, can have a direct influence upon their own health by the manner in which they interact with their environment.
People can help to protect the quality of their health and safety by consciously improving their environment and their quality of life.

People must be educated to ways of safeguarding their quality of life in order to modify their environment or themselves.

LEARNING

Using the "ENVIRONMENTAL HEALTH EVOLUTION AND PREDICTION GRID", describe how various historical eras may have affected the spread of microorganisms (i.e. tuberculosis, venereal disease, common cold, smallpox, etc.). Cite examples and explanations of situations being hazardous to human health at one time in history but not in another.

Complete the "VARIABLE HUMAN HEALTH FACTORS" chart. Explain how one's occupation, age, habits, and locale may be contributing causative factors in threatening the health of people. What generalizations might be made regarding the interrelationships which might exist between each of the factors?

Research comparative costs to society: (i.e. cost of air pollution control vs. health costs of disease or discomfort resulting from air pollution)

Explain the relationships which may exist between each of the following and environmental health care. Then complete the "ENVIRONMENTAL HEALTH PROBLEMS AND SOLUTIONS: PAST AND PRESENT" chart.

- soil and infectious bacteria
- refuse and disposal facilities
- a large geriatric population
- trained health personnel
- natural resources and sharp population increase

Trace the development of our modern-day toilet and garbage disposal.

Divide class into 6 groups, each to role-play how a pioneer family (together with friends, town doctor, etc.) might respond to a child with an extremely high fever. Then switch to play-acting the same situation greeted by a modern-day family.

On chart paper, illustrate with specific examples, how the Chain of Infection (including causative agent, reservoir, exit, transmit, entry, susceptible host, body defenses) differs from the Chain of Accident Factors (including trigger, human factor, agent or object directly responsible, environmental setting).

ACTIVITIES

In a survey (N.E.E.D.S.) conducted by the City of Cleveland Health Dept., it was found that residential urban areas with environmental deficiencies correlated to show an above-average incidence of tuberculosis, school dropouts, venereal disease, infectious hepatitis, and families on welfare. Committees may be formed to contact your local Health Dept. and social service agencies to learn whether a similar situation exists in your own community. What conclusions and solutions may be derived at as a result of your study?

Obtain an Audio Frequency Test Record from your local record shop. Play in class and see how many students are able to hear the high and low frequency ranges.

- What environmental health factors might determine differences in hearing ability among people?

Invite a veterinarian to class to discuss the role that pets play in a healthy/unhealthly environment (i.e. dogs (rabies, ticks, fleas, etc.); turtles (salmonellosis); birds (psittacosis).

How do each of the following relate environment to health?

- soap
- gum in drinking fountains
- toothbrushes
- scraped knees
- flies
- drinking water
- puddles
- toilets
- vacant lots
- smoke
- refrigerators
- tissues
- fire

Create jingles such as the following:

Dumps and mosquitoes
Flies and fleas
Do harm to people
By spreading disease

Research the following statement:

> "One quarter of the world's hospital beds are filled with people suffering from waterborne diseases."

LEARNING

Extend the previous study to include HOME ACCIDENTAL POISONING.

1. Discuss the following statistics:
   - -500,000 to 1,000,000 people accidentally poisoned at home each year
   - -2,500 deaths/year
   - -250,000 household chemicals on the market (an analysis of 15,000 of these products showed that 70% were moderately toxic or worse.)

2. Conduct a survey seeking the following information:

   a. whether anyone in family ate or drank any dangerous product within last year
   b. product involved
   c. where product kept
   d. where accident happened
   e. time of accident (month, time of day)
   f. age and sex of person involved
   g. who treated person
   h. approximate cost of treatment
   i. call made to Poison Information Center?
   j. work or school time lost
   k. where dangerous products now stored
   l. how accident might have been averted

Discuss the effect of healthy and unhealthy environments upon:

babies
elderly
strong
weak
ill
allergic

ACTIVITIES

Students to make a study of home and neighborhood accidents in order to recognize that the manner in which one interacts with his environment can lead to accidental injury in addition to physical discomfort and disease.

1. Interpret the following statistics into meaningful charts and exhibits:
   - Home accidents, each year in the U.S., account for:
     - 27,000 deaths
     - 4 million people requiring medical attention
     - 400,000 people crippled for life
     - $5 billion/year cost to the public of home and neighborhood accidents

2. Conduct a HOME AND NEIGHBORHOOD ACCIDENT SURVEY. Include in the survey form questions regarding:

   a. whether accident occurred within last year
   b. number of accidents
   c. age and sex of those involved
   d. nature of injuries (i.e. burns, cuts, broken bones, sprains, etc.)
   e. parts of body hurt (i.e. head, arms, eyes, fingers, etc.)
   f. objects involved (i.e. scissors, garden tools, utensils, bicycles, etc.)
   g. location of accident (kitchen, bathroom, garage, pool, etc.)
   h. time of accident (i.e. month, time of day)
   i. treatment administered (i.e. doctor, hospital x-ray, family first aid, etc.)
   j. approximate cost of treatment
   k. work or school time lost
   l. suggestions for ways accident might have been avoided

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. CONTACTS TO BE MADE:

   a. Health Department

   b. Biology Dept. of local college

   c. Nursing School or Association

   d. Local Medical/Dental Society

   e. School Nurse

   f. Veterinarian

   g. Safety Council

   h. Poison Information Center

   i. Audiologist

   j. Safety Council

2. NOTES ON SURVEY:

VOCABULARY

health
environmental health hazard
accident
susceptible
vector
parasites
toxins
pasteurization
disinfectant
adaptation
resistance
nutrition
vaccination
immunity
immunization
sanitation
W.H.O. (World Health Organization)

MATERIALS NEEDED

Reference books
Chart paper
Audio Frequency Test Record
Survey materials

SUGGESTED BOOKS AND FILMS WHICH GRAPHICALLY DEPICT THE RELATIONSHIP BETWEEN HEALTH AND ENVIRONMENT

There are numerous health and/or safety books and films which would be applicable with this unit. The following are a few which give an environmental perspective necessary to complete understanding that quality of life and quality of health are inseparable.

Habenstreit, Barbara THE MAKING OF URBAN AMERICA Messner c1970
The development of the American city from colonial times, with emphasis upon the origins of the most serious problems of today's cities.

Pringle, Laurence ECOLOGY - SCIENCE OF SURVIVAL Macmillan c1971
A prime source of basic information on the study of relationships between living things and their environment. An overview of the entire web of life.

George, Jean Craighead WHO REALLY KILLED COCK ROBIN? Dutton c1971
In an absorbing story, a group of students trying to find the reason for a robin's death discovered the many pollutants that were killing other community wild life as well.

HEALTH IN OUR COMMUNITY (Intermediate - color - 13 minutes - S.L.)
Gives a comprehensive picture of the Health Department's organization and services, presents a case study of medical detective work - a fight to prevent an epidemic of typhoid fever. Stresses the teamwork that exists at all times between public health personnel and private medical people in dealing with community health problems.

WASTAGE OF HUMAN RESOURCES (10 minutes - P.L.)
Points out such things as disease, delinquency, unemployment, crime, and war as tragic wastes of human resources brought about by society's failure to provide healthful and safe living conditions.

BACTERIA - FRIEND AND FOE (Upper - Adult - Color - 10 minutes - S.L.)
Defines bacteria, explains how they are classified, tells where they are found, how they reproduce, the importance of helpful bacteria to mankind, and stresses the fact that harmful or parasitic bacteria are in the minority. Includes sequences on the historical development of bacteriology by portraying contributions of Leeuwenhoek, Pasteur, and Koch.

YOUR HEALTH - DISEASE AND ITS CONTROL (Upper - PTA - 10 minutes)
Through photo-micrography and animation, we are able to see how harmful microbes are carried and spread, how they enter the body, get beyond the body defenses and cause sickness. Also shows how disease can be controlled.

HOW TO HAVE AN ACCIDENT IN THE HOME (all grades - color - 7 minutes - S.L.)
J. J. Fate (a cartoon character) uses Donald Duck to prove most "accidents" are carefully planned. "Average people have accidents because they don't use average intelligence," J. J. Fate. Donald Duck goes from one accident to another inside an average home. All the situations shown are familiar ones. The film is funny but deadly accurate in its portrayal of how home accidents happen.

BE YOUR OWN TRAFFIC POLICEMEN (all grades - color - 10 minutes - S.L.)
A delightful cartoon film to help children learn to be safe in traffic. The motivating concept of "being your own traffic policeman" helps children learn safe attitudes.

THE BICYCLIST (15 minutes - color - P.L.)
An imaginative film which tells in a humorous way of the experiences of a red bicycle owned by two kinds of riders - one who obeys the rules and one who disregards them all. Makes a pointed and entertaining contribution to safety education.

RABIES (14 minutes - P.L. - S.L.)
Shows clearly the causes of rabies, its effect and its control, and gives specific instructions on what to do in case of any dog bites. No shocking or offensive scenes nor clinical terms are included. Suitable for showing to both children and adults.

HOUSEFLY (Upper - intermediate - 11 minutes - S.L.)
Shows the stages of development of the fly. Closeup views of female's ovipositor laying eggs, hatching of the larvae and their development into pupae from which the insects emerge as young flies. Practical examples of the control of the spread of disease germs by flies are illustrated.

ENVIRONMENTAL HEALTH EVOLUTION AND PREDICTION GRID

ERA	LIFE-STYLE	SOCIAL AND ENVIRONMENTAL IMPACT	QUALITY OF LIFE DETERIORATION FACTORS	HEALTH HAZARDS PREVALENT (Epidemiology)	FATE OF SOCIETY
CAVEMAN	Trial and Error	Basic survival	Lack of knowledge in meeting basic needs Limited protection against environmental conditions Accidental poisoning	Arthritis Malnutrition	Extinction
MEDIEVAL	Rural agricultural	Socialization	Poor sanitation Food poisoning Superstition	Plague	Premature death
COLONIAL	Frontier	Exploration	Lack of adequate food supplies Lack of adequate medicinal supplies Time necessary for adjustment to new environment No immunity to new diseases	Malnutrition	Premature death
INDUSTRIAL REVOLUTION	Urbanization	Industrialization	Child Labor Hazards from changes in food preparation techniques Crowding Human abuse	Black Lung Disease	Lower Productivity
MODERN MAN	Urban Industrial Suburbanization "Ease & Convenience	Space Exploration	Self-centered society Fast-paced living Disposability Deteriorating urban centers Geographic separation of families	Alcoholism Hypertension Heart Disease Venereal Disease Chronic Diseases	Neurological Disorders Tension-Anxiety Deteriorating Life-Styles & Interpersonal Contacts
FUTURE MAN	Adaptability OR	Complete Human Environmental Planning OR Haphazard Use and Depletion of Resources	OR Depletion of Resources	Biological Mutations Chronic Diseases OR Hazards resulting from depletion of resources	Survival OR Elimination

ENVIRONMENTAL PROBLEM	CAUSATIVE FACTORS		RESULTANT EFFECTS		HEALTH EFFECTS		MEASURES TAKEN	
	PAST	PRESENT	PAST	PRESENT	PAST	PRESENT	PAST	PRESENT
Contaminated Air								
Contaminated Water								
Noise Excesses								
Cockroaches, Flies								
Vacant Buildings								
Hazardous Consumer Products								
Population Explosion								
Weeds								
Substandard Housing								
Chemicals								
Litter								
Sewage								
Free-roaming Dogs								
High Lead Blood Levels								
Excessive Radiation								
Odors								
Rodents								
Hazardous Toys								
Fire								
Contaminated Milk or Food								
Diseased Farm Animals								
Careless Use of "Safe" Products								

DISEASES OF ENVIRONMENTAL SIGNIFICANCE

MODE OF DISEASE TRANSMISSION	DISEASE	PREVENTION
DIRECT OR INDIRECT CONTACT -touching -droplets in air		
AIR-BORNE -dust -droplets in air -radiation		
VECTOR -mosquito -fly -flea -tick -lice		
VEHICLE -milk -water -food		

How are each of these diseases transmitted and prevented?

anthrax
botulism
brucellosis
chemical
   food poisoning
cholera
Colorado tick fever
diphtheria
encephalitis
Epidemic typhus
hookworm
infectious hepatitis
malaria
Murine Typhus
mushroom poisoning
para-typhoid fever
pediculosis
plague
polio
psittacosis
rabies
ringworm
Rocky Mountain
   spotted fever
salmonellosis
silicosis
staphylococcal
   food poisoning
strep infections
TB
Trench fever
venereal disease
yellow fever

RELATIONSHIP OF VARIABLES TO HUMAN HEALTH FACTORS

HUMAN FACTOR	HEALTH HAZARD
OCCUPATION	
1. Farmer/cattleman	
2. Construction worker	
3. Office worker	
4. Asbestos plant worker	
5. Astronaut/pilot	
6. Taxicab driver	
7. Barber/beautician	
8. Doctor/nurse	
9. Plumber	
10. Sailor	
11. Miner	
12. Fireman	
13. Butcher/rendering plant worker	
14. Dog warden/veterinarian/zoo caretaker	
15. X-ray technician/dentist	
16. Jackhammer operator	
AGE	
17. Small children	
18. Teen-agers	
19. Senior citizens	
HABITS	
20. Heavy drinker	
21. Overeater	
22. Heavy smoker	
23. Sexually promiscuous person	
24. Inactive person	
LOCATION	
25. Resident in Great Lakes region	
26. Resident of slum area	
27. Resident of dry, sunny climate	
28. Resident of industrial area	

ENVIRONMENTAL PROBLEMS FOR RESEARCH AND DISCUSSION

-Why might only 3 out of 5 apartments in a building have cockroaches while the other 2 remain cockroach-free?

-To whom might you turn for help if the car your family buys today stops running on the highway tomorrow?

-If the fuse blows often at your house, this is a clue that you might be risking what environmental safety hazard?

-Describe how each of the following possible results of the "energy crisis" might affect your family's health?
=higher oil and gasoline prices
=Daylight Savings Time
=ban on Sunday driving
=use of electric household heaters
=nuclear energy power plants
=lower speed limits
=lower household and office thermostat settings
=unavailability of vinyl boots and/or other vinyl and plastic products made from petroleum

-If pigeons are roosting in the gutters of your house, should you feed them and encourage their living there?

-What factors contribute to 65,000 people being killed each year on U.S. highways?

-Why might drinking orange juice from a glazed pitcher poison you?

-Why do more crimes occur in cities than in rural areas?

-Why might a real estate company have a difficult time selling the same exact house under each of the following conditions?
=in a suburban housing development
=in an industrial area of town
=next to a nuclear power plant
=in an area with cesspools not sewers
=in a rural community
=downtown in a large city
=next to a poultry plant
=next to a discotheque
=right near an open dump

-Why has the U.S. government lifted vaccination re-entry requirements from visits to some countries and not others?

-Why are astronauts quarantined after a journey into space?

-What environmental factors contributed to the short life span of colonial people?

-Explain which medical specialty might be busiest in an area of high air pollution.

-How might flaking paint or plaster in your livingroom harm your young brother or sister?

-Why are babies and old people generally rat bite victims?

-If your dentist tells you that the x-rays taken at your 6 month check-up are safe, why does his dental technician go out of the room before pressing the starter button each time she takes the x-ray?

-If all the sewage treatment plants in a city were suddenly to stop functioning, what might be the affect upon the people? How were liquid wastes handled before there were sewage treatment plants?

-How has the invention of the microscope affected the health of people? What new medical tool of today might have a similar impact upon the health of people?

-Why are some schools and hospitals installing carpeting on the floors and on the walls?

-Why does the government occasionally "recall" certain products (such as specific cans of mushrooms or certain models of cars) even if they seem to be perfectly all right to the average citizen?

-Are the causes and health effects of California's smog the same as those of London's fog?

-Why do people living in some parts of the world have to boil their drinking water while people in other parts of the world do not?

-Why is a sharp rusty object considered an environmental health hazard?

-If your food store advertises FRESH MILK for sale, why isn't the fresh milk taken directly from the cow even more desirable?

-Which of the following people might appreciate receiving a gift of earmuffs?
=astronaut to the moon
=skindiver in Florida
=resident of Minnesota
=construction worker in Cleveland
=homeowner near I271
=factory worker in Detroit
=highway policeman in California

-Under what circumstances might your local butcher shop have a strong odor?

-If eggs or cottage cheese are on special at your local supermarket and the clerk has stacked them high in the middle of the aisle, what complaint might you make to the market manager?

-If you had the power to alter our environment, what changes might you make as a means of lengthening the average life-span of Americans?

-What conditions might cause 38 out of 84 people attending a Potluck Supper to become ill?

-Why should dogs be kept on a leash? Why should dogs and cats go to a veterinarian for periodic check-ups? What diseases are commonly carried by dogs and cats?

-What diseases are carried by imported birds and turtles? How can we be protected against these diseases?

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND NOISE	RADIATION	AIR	WATER	[illegible]	[illegible]

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
[illegible]	[illegible] PEOPLE	[illegible]	PRODUCT SAFETY (COST)
POSITIVE NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION ON COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL [illegible] ENVIRONMENT	INTERNATIONAL ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDE	ENVIRONMENTAL EDUCATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION [illegible]	[illegible]	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

A society may use its resources wisely or misuse them through wasteful activities.

A society's functioning depends, in good measure, upon the availability of resources.

Since some resources are available in limited amounts, it is essential that they be used wisely.

In the process of using a resource, society may be misusing it.

Misuse of some resources may alter the environment in possibly an irreversible manner.

The manner in which society uses its resources ultimately affects the quality of life.

Wise use of resources help to maintain life while misuse may block and directly, or indirectly, destroy life.

Wise use of resources is ultimately essential in order to protect the health and safety of our people.

Nature recycles some resources to a limited degree but cannot eliminate entirely the effects of society's abuse of the resources.

Informed people are beginning to realize that the increase in population coupled with the misuse of natural resources, results in a greater demand for a limited supply of their resources.

A limited supply of resources is affecting our cost of living and, ultimately, a gradual decrease in our quality of life.

Fortunately, misuse of resources can be controlled by an informed population.

Industry is being challenged to use our resources wisely.

Individual citizens, too, should use our resources carefully, in limited amounts, and only when necessary.

Through education, concern, and action, a society can take steps to use its resources wisely and protect its quality of life.

LEARNING

In order to develop an understanding of the differences in wise and unwise use of resources, students should research and discuss each of the following topics:
- definition of environmental usage
- examples of wise and unwise use
- the relationship between misuse of resources and standard of living, and of standard of living and quality of life
- factors which lead to misuse of resources
- factors which can encourage wise use of resources
- factors which can help convince people to alter behavioral patterns in order to wisely use and conserve resources

Explain the following statement in terms of environmental use and misuse:

> You and your environment are a simultaneous event.

Discuss each area of environmental resource and the way people use and abuse it. (Refer to chart INDIVIDUAL CITIZEN USE AND MISUSE OF RESOURCES on folder insert.)

How do each of the following relate to this discussion?

- stagnant water and puddles
- fire prevention and flammable clothing
- garbage collection
- product safety
- animal bites
- lead poisoning
- insect infestation
- crib safety

Mount a map (city, county, state, region, or U.S.) onto a board. Drill 1/4" holes spaced 3/8" apart. Straws cut into small pieces may be inserted to depict areas of various forms of pollution, industry, etc. By using straws in two different colors, students may show areas where the environment is generally cared for and areas where it is grossly abused.

ACTIVITIES

HUMAN CONSUMPTION AND ENVIRONMENTAL MISUSE:

It has been calculated that each man, woman, and child in our country consumes, on the average, each day,

3 lbs. of food
8 lbs. of water
84 lbs. of air

At the same time, each person, per day, disposes as waste,

5.3 lbs. of solid waste
70 gallons of liquid waste

1. Explain through written essays, art work, or creative dramatics, the relationship which exists between consumption and waste by-products and environmental use and misuse.
2. Using mathematics, play with the above figures and make a chart of "Startling Environmental Facts". For example, "On the average, each person in our country discards almost 1 ton of solid wastes in the form of cars, rubber tires, garbage, appliances, plastic, paper, etc. each year."
3. How should individuals change their behavior as a result of these facts?

FIELD TRIP to nearby lake or stream.

1. What would each of the following tell you about environmental use and misuse:
   a. shoreline scum and garbage
   b. milky white discharge in water
   c. growth and odor of algae
   d. fish kill evidence
   e. evidence of sewage and industrial wastes
2. Investigate your observations by talking to people in government, industry, and environmental groups.
3. What legislation pertains? Is it being enforced? (Refer to chart INDUSTRIAL USE AND MISUSE OF RESOURCES on folder insert.) What is an "Environmental Impact Statement"? (Contact the E.P.A.)
4. Write a class letter to the Editor regarding your observations and conclusions.

5. Read: Life of Rivers and Streams (McGraw-Hill, 1967) by R. Usinger. Why did the Cuyahoga River in Cleveland catch on fire?

Committees should be formed to study local examples of use and misuse of specific environmental areas.

1. Which of the community's activities yields the greatest pollution potential?
2. What are the factors which contribute to the wise use examples vs. the misuse examples?
3. If there is no legislation pertaining to the misuse examples, draft a sample bill. Send the proposed legislation to your elected official. Include a letter stating how it was arrived at.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. LOCAL EXAMPLES OF ENVIRONMENTAL ABUSE:
   a.
   b.
   c.
2. FIELD TRIP IDEAS:
   a. Shoreline of lake or stream
   b.
   c.
3.

VOCABULARY

resources
use - misuse
availability
irreversible
recycle
"abuse of resources"
airshed
watershed
"Environmental Impact Statements"
compliance
oil slick
fishkill
industrial wastes
supply and demand

MATERIALS NEEDED

Maps
Mounting board
Drills
Straws
Mural paper
Art supplies
Two books (as mentioned)
Cardboard, small pieces
Safety pins, small size

BOOKS AND FILMS WHICH MAY BE USED TO EMPHASIZE USE AND MISUSE OF THE ENVIRONMENT:

Hoff, Syd THE LITTER KNIGHT McGraw Hill c1970
Sir Dudley despises litter. This story tells how he and his brave horse find eager dragons to help clear away a careless kingdom's trash. There are many amusing pictures by the author.

Jones, Claire & others POLLUTION: THE WATERS OF THE EARTH Lerner c1971
Discussion of the greatest threats to the purity of our waters and of the high costs of water pollution. Cleveland's part in the pollution of Lake Erie and the burning of the Cuyahoga River are included.

McCoy, J. J. SHADOWS OVER THE LAND Seabury c1970
The pollution problems of planet earth are brought near home: Lake Erie's plight, Donora smog, Pennsylvania Hank Mountain pesticides, farming problems far and near, receding forests and vanishing wildlife, all these and more with serious thoughts on what to do.

ALL THE DIFFERENCE (21 minutes - color - P.L.)
A film on ecology told against the storyline of a family on their way to an outing. Polluted areas are pictured to show the results of man's carelessness and misuse of our environment. In closing sequences a figure is shown at a fork in the road - one presumably leading to nature as it was - the other to the way it is now, and posed the question, "Which will you take?"

THE CITY AS MAN'S HOME (28 minutes - P.L.)
Surveys the rise of slums, grant public housing complexes, mass suburbs, bleak lixiry apartments, in examining the contention that almost everywhere in our cities communal standards of living are falling even as personal standards of living rise. Analyzes the cause and proposes what the cities might do to improve this. Based on the book, "The City In History", by Leives Mumford.

CONSERVATION (10 minutes - P.L.)
Discloses the depletion of forests, effects of wind and water erosion, wastage of mineral resources, and wasteful killing of wildlife, resulting from early misuse of natural resources. Outlines a constructive program of conservation.

OUR NATURAL RESOURCES (Int. - Upper - color - 10 minutes - S.L.)
The chief natural resources of America in timber, minerals, oil, building stone, uranium, and water sources are shown, and specific ways of conserving these resources for future availability are demonstrated.

DROP IN THE BUCKET (PTA - Elementary - 10 minutes - S.L.
Documentary story of how one town added fluoride to its water supply. A U.S. Public Health Service film.

THE RISE AND FALL OF THE GREAT LAKES (16 minutes - color - P.L.)
A series of folk songs with banjo accompaniment describes how the Great Lakes were originally formed, how they changed and developed over the years, and how they now face total destruction from being polluted.

WATER: FRIEND OR ENEMY? (8 minutes - color - P.L.)
Water can be a true friend to man if proper precautions are taken to see that it is pure. Illustrates correct measures in keeping spring water from being contaminated and suggests boiling water as a final precaution.

THE LITTER MONSTER (Free loan film from: Keep America Beautiful
99 Park Avenue
New York, New York 10016

LAND USE IN OUR COMMUNITY

Students should explore the use and misuse of land in various communities to better understand the relationship of land use to mental and physical well-being of its occupants.

1. Sketch a map of your school neighborhood.
2. Label the residential, industrial, commercial, and recreational zones.
3. Are people living in areas which are not zoned as residential? If so, how does their quality of life compare with those living in restricted residential areas. What variances in zoning regulations have been made in your neighborhood that have altered your way of life?
4. How is land being put to use in your neighborhood?
5. What changes would improve the land use in your community?

FACTORS WHICH AFFECT LAND USE

FACTORS	INTENDED LAND USE	HELPFUL EFFECTS	HARMFUL EFFECTS
Watershed			
Sewage treatment			
Transportation			
Airshed			
Noise			
Zoning ordinances			
Power and heating			
Building codes			
Population density			
Traffic flow			
Soil chemistry			

USE AND MISUSE OF NATURAL RESOURCES

INDIVIDUAL CITIZEN USE AND MISUSE OF RESOURCES

RESOURCES	USES OF RESOURCE	POSSIBLE MISUSES OF RESOURCE	CALCULATED ENVIRONMENTAL DAMAGE DONE BY 30 PEOPLE
1. WATER			
2. AIR			
3. SOUND			
4.			
5.			
6.			
7.			
8.			

INDUSTRIAL USE AND MISUSE OF RESOURCES

SPECIFIC INDUSTRY	RESOURCES USED	POSSIBLE MISUSE OF RESOURCES	ENVIRONMENTAL LEGISLATION PERTAINING TO MISUSE	ENVIRONMENTAL IMPROVEMENT MEASURES PROPOSED A/O TAKEN
1.				
2.				
3.				
4.				

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBLITY	PRODUCT SAFETY (TOYS)
POSITIVE VS. NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS. ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCE USE AND MISUSE	CONSERVATION OF RESOURCES	[illegible] AND IMBALANCES OF PRODUCTS	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Co-operative conservation action must occur if we are to preserve our resources and maintain a quality of life.

Resources are essential to life.

Society must not disturb the balance between natural resources and life on earth.

The standard of living which our society enjoys has been attained, in part, at the loss of some of our resources.

From its early days, the national goal of the United States has been upon development of land, of resources, of urbanization, of industrialization.

Conservation is now becoming a national goal in order to preserve those dwindling resources which helped our nation to come so far so fast.

People must be educated to understand and feel the need for environmental control.

By careful management of natural resources such as forests, timber, wildlife, air, water, minerals, land, and energy supplies, society ensures protection of existing resources by forestalling future destruction.

Environmental management helps toward replenishing those resources which are renewable.

We should extend our conservation efforts to include protection of social resources such as our people, our neighborhoods, and our cities.

Aware citizens recognize that the people of a nation are one of its most basic resources.

Caring for individual people and protecting from deterioration the neighborhood and city environments in which they live, is one example of environmental health management.

People must co-operatively plan for the wise use of natural resources and for preservation of local environments in order to maintain the quality of life and a life of quality.

LEARNING

In order to develop an understanding of the concept of conservation and how people should co-operate in the use of its resources, students should research and discuss each of the following topics:

- -definition of conservation
- -environmental resources to conserve
- -examples of conservation practices
- -the relationship between conservation and standard of living, and of standard of living and quality of life
- -factors which discourage conservation; those which encourage conservation
- -people as a resource

On mural or chart paper, construct a large cut-away section pictorial chart showing various resources which are found deep underground, near the earth's surface, on the surface, above the surface, etc.

1. Include basic resources such as air, water, food, timber, plants, animals, people, insects, minerals, etc.
2. Use the chart to study the interrelationships which exist among these resources.
3. How would conservation of some of these resources possibly affect other resources?

MAP WORK

Using local, state, national, hemisphere, and world maps and a globe as reference, graphically show and record where various natural resources are to be found.

1. Using a topographical map, try to intelligently guess the resources and life styles of various regions. Research to see if your guesses are correct.
2. Make a Capsule Resource Map. Obtain empty glycerin capsules from a druggist. Open and fill each capsule with a representation of a particular resource. (i.e. a cut up toothpick for lumber, etc.) Glue capsules to appropriate location on a large map.
3. How does geographic location relate to access, use, and cost of natural resources?

ACTIVITIES

Using specific examples, explain how each of the following are related to conservation:

- -rapid population growth
- -urbanization
- -industrialization
- -technology
- -life styles

Let's Play Historian: Class, divided into committees, should trace federal conservation legislation pertaining to the various environmental areas. Let's Play Soothsayer: Based upon information gained from the historical perspective and current relevant information, class should make predictions about the direction of future conservation legislation.

Draw a series of mini-murals to demonstrate advances in conservation practices. (Be sure to include population growth as a contributing impetus in the need for conservation.)

Students might enjoy compiling individual ABC conservation environmental books. Drawings and magazine clippings each labeled with descriptive paragraphs would turn the booklets into "environmental readers".

What is the relationship of Dutch Elm Disease and conservation?

Role-play situations involving each of the following:

John Audubon	Johnny Horizon
Gifford Pinchot	Smoky the Bear
Rachel Carlson	Local citizens
John Muirs	Maybe even, you!

Study newspapers to ascertain why conservationists are often in conflict with governmental officials, commercial interests and consumers.

1. Clip newspaper articles showing different points of view on same topic.
2. Make a chart describing how various groups would feel about certain issues.

Think about this statement:

By saving wildlife
People may
Be saving themselves

1. What do you think is being said?
2. Who do you think is saying it?
3. Who might help you to understand this statement? Consult the following for their interpretation:

   Ohio Department of Natural
   Resources
   Division of Wildlife
   1500 Dublin Road
   Columbus, Ohio 43215

Make a study of the birds common to your community.

1. Are birds considered a natural resource?
2. How do people's activities affect bird populations? Cite examples.
3. Build a bird feeder by cutting a discarded ordinary plastic bleach bottle to make room for bird seed, perch, etc.
4. Hang feeder outside classroom; record observations.

ACTIVITIES

In what ways are people our greatest resource?

1. How do each of the following affect the human resource element of a nation?
    - -congestion
    - -urban living
    - -traffic
    - -crime
    - -poverty
    - -industrialization
    - -availability of natural resources
    - -accidents
    - -disease
    - -nutrition
    - -recreation
    - -unemployment
    - -delinquency
    - -pollution
    - -war
2. How do each of the following nuture and preserve our human resource:
    - -hospitals
    - -parks
    - -museums
    - -libraries
    - -schools
    - -service agencies
3. What specialized needs do each of the following groups of people have?
    - -infants
    - -school-age children
    - -elderly people
    - -invalids
    - -teenagers
4. Write a CONSERVATION OF HUMAN RESOURCES CREDO. Check to see that it includes:
    - -physical and mental well-being
    - -knowledge generated and taught
    - -environmental and genetic factors as determinants of how an individual develops
    - -respect for individual differences
5. Discuss the following statement: **The dignity of every human being together with his right to survive is a main reason for environmental betterment.**

Conservation at Home

Students should make posters to display throughout the school showing conservation tips which the average citizen can practice. (For example, washing dirty dishes all at once rather than a few at a time, promptly repairing leaks, turning off unneeded electric lights, using cloth shopping bags rather than paper bags, buying soda pop in refillable bottles rather than disposable bottles, etc.)

Debate: To conserve water, lawns should not be watered.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. CONTACT SUGGESTIONS:

    a. Sierra Club

    b. Isaac Walton League

    c. Audubon Society

    d. Garden Club

    e. Environmental Protection Agency

    f.

2. FIELD TRIP IDEAS:

    a. Natural History Museum

    b.

    c.

VOCABULARY

conservation
preservation
resources
resourcefulness
"cooperative conservation action"
quality of life
life of quality
standard of living
"endangered species"
urbanization
industrialization
land development
congestion
leisure
dignity
delinquency

MATERIALS NEEDED

Reference materials
Maps and globe
Mural or chart paper and art supplies
Capsules, unfilled glycerin (obtain from drug store)
Various materials for capsule map
Discarded plastic bleach bottles
Bird seed

CONSERVATION OF RESOURCES

AVAILABILITY AND RESTORATION OF NATURAL RESOURCES

NATURAL RESOURCE	Unlimited	Plentiful	Sufficient for Current Usage	Limited	Scarce	Recyclable or Renewable	Non-Recyclable or Non-Renewable
Trees							
Clean air							
Clean water							

INDIVIDUAL CITIZEN COMMITMENT TO CONSERVATION

COMFORT ENJOYED	RESOURCES USED	CONSERVATION MEASURES WHICH INDIVIDUAL CITIZEN MAY TAKE
1. Dry, secure housing		
2. Central heating		
3. Air conditioning		
4. Indoor toilets		
5. Nourishing food		
6. Stove and oven		
7. Fur coat		
8. Paper towels		
9. Electric pencil sharpener		
10. TV dinners		
11. Daily newspaper		
12. Commutation from "bedroom suburb"		

SUGGESTED MOVIES ON CONSERVATION

ADVENTURING IN CONSERVATION (Intermediate - color - 16 minutes - S.L. - P.L.)
This film goes exploring with boys and girls as they discover nature's community and the balance that must be maintained among trees, small plants, birds, insects, and other animals. Presents the damage that man causes to his environment, illustrates good conservation practices and demonstrates responsibilities of campers. Shows boys and girls in actual camps, engaged in camp craft and conservation activities. Beautiful natural forest settings.

CONSERVATION AND OUR FORESTS (Intermediate - color - 15 minutes - S.L.)
Explains why forests are a valuable natural resource. Tells how, through conservation, a continuing supply of wood products can be made available without destroying the forest.

CONSERVING OUR WATER RESOURCES TODAY (Intermediate - color - 11 minutes - S.L.)
Surveys the domestic, agricultural and industrial use of water in the U.S., diagrams the water cycle and shows our major sources of water. In addition, the film indicates methods for conserving surface and ground water, as well as for reclaiming and purifying water in order to avoid shortage.

THE LEADING EDGE (27 minutes - color)
As man advances, so does his need for more energy.....and his desire for intelligent use of present resources while he continues to search for fuels of the future. This film is a look at the first company to utilize all four of our energy resources (oil, gas, uranium, and coal) and is an attempt to satisfy man's insatiable appetite for energy.
#4411 KERR-McGEE CORPORATION

MAN'S BASIC NEED - NATURAL RESOURCES (Inter. - color - 11 minutes - S.L.)
A study of two New Mexico towns emphasizes the importance of natural resources to man's existence. One is a ghost town deserted by miners after they no longer could afford to buy water. Hotch, another town in the valley, prospers in a rich, farming community.

NATURE'S LAST STAND (25 minutes - color - P.L. - S.L.)
The story of The Emerald Necklace - Cleveland's Metropolitan Parks. Portrays the recreational facilities of the parks through the seasons, with special emphasis on conservation and the need for preservation of our natural resources. Some footage is devoted to the geology of this region and to the forest types that vary with soil conditions and terrain in the various parks. Geology, Ecology, and Human Needs.

REALM OF THE WILD (27 minutes - color - P.L.)
Work of the National Forest Service in conserving wildlife such as Canadian geese, ducks, owls, moose, deer and buffalo. Excellent close-ups of animals. Produced by the U.S. Forest Service.

WATER (15 minutes - color - P.L.)
Here is a presentation of worldwide water shortage, pointing out that there is water everywhere in varying degrees, but that the denuding of watersheds, increased demand and pollution threaten a global water famine. The film underscores the fact that advanced countries such as the U.S. face problems equally as serious as those of the underdeveloped arid lands. It also makes a plea for the cooperative effort of all nations to control water.

WE'RE ON OUR WAY (Int. Upper - color - 25 minutes - S.L.)
Depicts what youth groups can do in the area of conservation and beautification of our natural resources.

BOOKS TO USE WITH THE STUDY OF CONSERVATION

Libraries are filled with innumerable books on conservation for young people. The following titles have been selected, however, for the creative, unusual approach they suggest in dealing with the whole topic. Furthermore, we suggest that more advanced students examine books intended for very young children, thereby, gaining a different perspective to the study of conservation.

Collins, Patricia   CHAIN OF LIFE - A STORY OF A FOREST FOOD CYCLE   Doubleday c1972

An explanation of the continuing food cycle that takes place in the forest - nature's network without which no living thing can exist.

Cadbury, B.B.   THE COMMUNITY OF LIVING THINGS IN FRESH AND SALT WATER   Creative Educational Society   c1967

A balance of nature is stressed and a good sense of the need for conservation is given in this book.

Pringle, Laurence   FROM FIELD TO FOREST   World   c1970

An exceptional book on plant succession and on inter-relationships of animals and plants. Intended to lead a child to explore the world of nature and its wonders for himself.

Heady, Eleanor B.   HIGH MEADOW   Grosset   c1970

Ecological relationships of plant, animal, and human life of a mountain meadow through the seasons of a year.

Schultz, Walter E.   HOW TO ATTRACT, HOUSE AND FEED BIRDS   Bruce   c1970 rev.

Presents the inter-relationship of man, birds, and our environment and ways to attract birds by providing food, water, and shelter.

Brooks, Maurice G.   THE LIFE OF THE MOUNTAINS   McGraw Hill   c1967

In each part of the United States, a mountain is described in great detail showing the different kinds of plant and animal life found on the various mountains.

Mattison, Charles W.   MAN AND HIS RESOURCES   Creative Educational Society   c1967

The subject of conservation of our natural resources in the past, present, and future is thoroughly discussed - photos, graphs, and charts accompany the text.

Wong, Herbert H.   MY LADY BUG   Addison Wesley   c1969

The story of this tiny insect so valuable in controlling aphids and citrus fruit scale is simply told. For younger children. It is colorfully illustrated by Marie Bohlen.

Freschet, Bernice   THE OLD BULLFROG   Scribner   c1968

Survival in the frog pond. This old bullfrog knew how to outwit the heron.

Wong, Herbert H.   OUR TERRARIUMS   Addison Wesley   c1969

How to arrange attractive indoor and outdoor homes for small wild animal pets. Many pictures illustrated by Aldren A. Watson. Integrated.

Wong, Herbert H.   OUR TREE   Addison Wesley   c1969

A tree is interesting as it changes from season to season, and so are the birds, animals, and insects that find homes and food in its branches. Many colored pictures illustrated by Kenneth Longtemps.

Jones, Claire & others   POLLUTION: THE LAND WE LIVE ON   Lerner   c1971

Man's damage to the ecology of the land including such special areas as national parks and the Arctic. Approaches to ecological planning.

McCoy, Joseph J.   SAVING OUR WILDLIFE   Crowell-Collier   c1970

This book concerns the story of the conservation movement beginning with a description of the American continent before the arrival of the white man.

STORY OF SOIL by the editors of Country Beautiful and Dorothy Holmes Allen   Putnam   c1971

Soil, "the storehouse of food and water for living plants and animals" (pg. 9), how it is made, what it has within it, how it is destroyed and how it can be protected. Illustrated by James Milton Smith.

Coatsworth, Elizabeth   UNDER THE GREEN WILLOW   Macmillan   c1971

"In the clear water, under the green willow" live together ducks, turtles, fish, and eels, in this attractive beginning ecology book for the youngest children.

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	SOUND (NOISE)	RADIATION	AIR	WATER	SHELTER	CHEMICAL

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
DEFINITION	IMPORTANCE OF PEOPLE	RESPONSIBILITY	PRODUCT SAFETY (TOYS)
POSITIVE VS. NEGATIVE	PEOPLE POWER	POWER OF COOPERATION	POWER OF CONSUMER
EFFECT UPON PEOPLE	PSYCHOLOGICAL IMPACT	EFFECT OF COOPERATION COMMUNITY AGENCIES	EFFECT OF QUALITY CONTROL (FOOD-MILK)
AESTHETIC SATISFACTION	APATHY FATALISM HELPLESSNESS	PROBLEM SOLVING	LEGAL ACTION
PUBLIC PROPERTIES	CULTURAL ARTS AND ENVIRONMENT	INTERNATIONAL VS ISOLATIONISM	LAWS – AGENCIES
VANDALISM	POSITIVE ATTITUDES	ENVIRONMENTAL EVALUATION	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

RESOURCES LIFE STYLES TECHNOLOGY	HEALTH VS DISEASE	RESOURCES USE AND MISUSE	CONSERVATION OF RESOURCES	CHECKS AND BALANCES OF RESOURCES	ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

A system of checks and balances in conservation of resources is necessary in order to maintain the existing quality of life.

Society must not disturb the balance between resources and life on earth.

Society must environmentally, politically, and economically manage its environment.

Environmental decisions cannot and must not be made unilaterally.

Decisions which affect our environment and the environmental health of our people should be reviewed by various sectors, factions, and agencies within our society.

To be successful, a system of environmental checks and balances would attempt to achieve concurrence between government, industry, and the people regarding environmental decisions which would affect society as a whole.

In our system of government, individuals acting alone or collectively, are able to register complaints or suggestions regarding environmental decisions or policies.

By urging their elected officials to vote for conservation measures, citizens can constructively pursue a legal system of environmental checks and balances.

Individuals, acting collectively through Environmental Citizens Advisory Groups, local and national environmental and other organizations, and political parties, can have clout in a system of environmental checks and balances.

A system of checks and balances regarding environmental decisions allows for review of complaints and consequent action by either initiating new policy, altering or stopping existing policy, or reaccepting current policy and allowing it to Continuous evaluation of our conservation of resources through a system of checks and balances encourages individuals, groups, agencies, industry, and government to work together in preserving the quality of life.

LEARNING

In order to develop an understanding of the concept of "checks and balances" and of the various manifestations of the system, students should research and discuss each of the following:

- -natural environmental checks and balances
- -political and legislative checks and balances
- -social checks and balances
- -psychological checks and balances
- -moral checks and balances
- -physical health checks and balances

Class should investigate various aspects of an environmental piece of legislation which has been enacted into law. (For example, the national Clean Air Act, a local noise ordinance, etc.)

1. Trace the legislative process which was necessary for the passing of the bill.
2. In order to obtain firsthand exposure to history in the making, contact the Legislator who proposed the bill. (An arrangement might be made with your local telephone company to set up a "conference call" in which the whole class might participate.)
3. Interview local people regarding effects of the law.
4. Who enforces the law?
5. On the basis of class research, students could re-enact through role-play, the checks and balances which led to the passage of the legislation studied. All class members should be encouraged to participate by representing different groups, point of view, etc.

Students should contact various agencies and groups to learn of their role in the checks and balances system regarding a particular environmental problem. For example, agencies involved in air pollution control would include Atomic Energy Commission, Dept. of Agriculture, Dept. of Commerce (Civil Aeronautics Administration, Weather Bureau, National Bureau of Standards), Dept. of Interior (Bureau of Mines), Dept. of Defense, federal and state Environmental Protection Agencies, municipal air pollution control, Lung Association, Sierra Club, etc.

ACTIVITIES

1. Are there any Environmental Citizens Advisory Groups in your town? Who are the members? Can you have input into their recommendations?
2. Conduct interviews with representatives of government, industry, environmental agencies, medical profession, residents, property owners, different political parties, etc. to point up various points of view on a particular problem. How do each of these groups make their influence felt? What tactics do they use?

Develop a survey form to use in conducting people-to-people interviews regarding attitudes, interest, and community involvement in environmental health problems. How might you use the survey results?

1. Request the following basic information:
    - age
    - occupation
    - length of residency
    - size of family
    - recent illnesses
    - property owner or tenant
2. Attitudinal questions such as the following, should be added:
    - Do you feel that vehicular noise is a problem in our community? Explain:____________________
    - How do you feel about the way our community is handling its garbage pick-up?_____________ its water pollution?_________ its consumer protection?_____
3. Interest questions, for example:
    - How would you describe the attitudes of your neighbors regarding environmental problems?
    - Do you agree with your friends and neighbors regarding current issues? Explain:_____________
    - Do you know anybody whose health is directly affected by environment? Explain:________
4. Community Involvement, such as:
    - What is your degree of political involvement? (none, minimum, moderate, very active, maximum)
    - Are you a member of any environmental interest group?
    - Have you ever signed a petition?
    - Have you ever written to your congressman?

LEARNING

The class, divided into six committees, should select six current local environmental issues for study.

1. Each committee should scour newspapers and magazines for articles pertaining to its topic.
2. Clip, catalog, and record news media coverage of the issue.
3. After sufficient material has been collected, students should scan clippings and notes in order to answer the following questions:
    - Does this problem affect the existing quality of life? In what way? How are people being affected by the problem?
    - What environmental balance has been violated resulting in this problem?
    - How are each of the following reacting to the problem:
        a. nature
        b. society as a whole
        c. individual people
        d. legislators
        e. interest groups
        f. social service organizations
        g. governmental agencies
4. After each of the six committees report their findings, the class should vote upon one issue or problem for in-depth class study and community involvement. (Refer to back of folder for "Class Study Guidelines for Local Issues".)

DEBATE: "Is the great cost of pollution control necessary and worthwhile?"

1. Cover: -pollution abatement including technology costs
    -public health costs
    -enforcement
    -legal system
2. Take a quick survey to ascertain whether student philosophies coincide with the attitudes of the community at large. Do they have to?

Explain how each of the following is part of our system of checks and balances:

1. Silver nitrate placed in eyes of newborn babies
2. Vaccination required for public school entrance
3. Blood test required for marriage license
4. Environmental Protection Agency laws
5. Environmental Impact Statements
6. Consumer power
7. Living in a democratic republic

ACTIVITIES

A class study of the population explosion would point out the need for a system of checks and balances in the conservation of resources.

1. Relate the various kinds of checks and balances (physical health, natural, psychological, etc.) to overpopulation.
2. Draw diagrams and charts to show how in underdeveloped countries natural checks and balances (i.e. disease epidemics, lack of protection from environment, etc.) control the population whereas in developed countries, technology has permitted a high quality of life together with a high population density.
3. Show how overpopulation creates pollution of living space in our cities.
   - -higher density living
   - -high rise apartments
   - -loss of individuality
   - -unemployment
   - -higher taxes
   - -greater demand for resources
   - -more waste by-products
   - -greater chance of disease transmission
   - -more traffic
   - -lower standard of living
   - -harried way of life
4. Invite to class a biologist to describe the noted experiments showing how rats living in overcrowded conditions eventually turn upon each other.
   a. Is our rising crime rate due, in part, to overpopulation?
   b. What checks and balances exist?
5. What population controls exist?
6. What are the goals of the following organizations? How do they participate in the checks and balances process?
   - -Zero Population Growth
   - -Planned Parenthood
7. How might individuals practice their own checks and balances?
8. Is there any currect legislation pending dealing with overpopulation?
9. Why is there such controversy regarding birth control and abortion?
10. How does the checks and balances process of overpopulation overlap into areas such as the V.D. epidemic, the energy crisis, etc.?

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. LOCAL ENVIRONMENTAL HEALTH ISSUES AND KEY PEOPLE INVOLVED WITH THEM.

   a. Issue:

   Contacts:

   b. Issue:

   Contacts:

   c. Issue:

   Contacts:

2. LOCAL AND STATE POLITICIANS:

VOCABULARY

checks and balances
"environmental decision-making"
legal process
"policy review"
lobby
referendum
overpopulation
"population explosion"
population density
Environmental Impact Statements
birth control
abortion

MATERIALS NEEDED

newspapers
News magazines
Letter writing supplies
Radio
Survey form
Chart paper
Telephone
Reference materials
Local map and phone book

CHECKS AND BALANCES IN CONSERVATION OF RESOURCES: CLASS STUDY GUIDELINES FOR LOCAL ISSUES

As explained within this folder's learning activities, class should undertake an in-depth study of a local environmental problem in order to understand, apply, and become involved in the system of checks and balances which helps to conserve our resources which are necessary to maintain the existing quality of life.

Use the following questions as a class study guideline:

1. How does the issue affect us in our community? our health?
2. How has this condition been brought about?
3. What existing legislation pertains to this problem?
4. Is existing legislation sufficient to cope with this problem? Why?
5. Is new legislation needed? Why?
6. Is new legislation proposed? Who proposed it? Why is this person particularly interested in the problem?
7. Who are our legislators? What do they have to say about the problem?
8. How is new legislation enacted?
9. What problems may exist in passing new legislation?
10. Are there some people in the community who disagree with the existing legislation and/or the proposed legislation? What are their views? How many different views are there?
11. Why do various individuals and groups within the community feel as they do? Can the views be delineated according to whether the people represent industry, political parties, health professions, environmental groups, property owners, etc.?
12. Are all of arguments concerning this issue aired for all to hear?
13. How is the news media handling this issue? What is the role of the news media on local issues?
14. Have other communities faced this same problem? How have they dealt with it?
15. What makes this problem unique to our community?
16. How might our class become involved in solving this problem? What avenues of action are open to us? Who can help guide us?
17. How might we involve our families in our concern?
18. What techniques might we best use to convince people that this problem ultimately affects our quality of life?
19. What realistic goals should we set for ourselves?
20. How might we evaluate our effectiveness?

NOTES:

CHECKS AND BALANCES: ACTION AND PROTECTION

SITUATION	INDIVIDUAL ACTION	COMMUNITY ACTION	LEGISLATIVE PROTECTION	UNMET NEEDS
1. FLU EPIDEMIC				
2. FLOODING				
3. "AIR POLLUTION ALERT"				
4. RAT BITE				
5. FOOD POISONING OUTBREAK				
6. GASOLINE SHORTAGE				

VARIOUS TYPES OF CHECKS AND BALANCES IN CONSERVATION OF RESOURCES

ENVIRONMENTAL PROBLEM -general -specific	CHECKS AND BALANCES					
	NATURAL	PHYSICAL HEALTH	SOCIAL	POLITICAL a/o LEGISLATIVE	MORAL	PSYCHOLOGICAL
1. AIR POLLUTION -Industrial emissions in Flats area of Cleveland	wind from lake	-Health Dept. monitoring -Lung Assoc. -A.M.A. pressure		-Clean Air Act -Environmental Protection Agency		-community pressure -consumer backlash
2. NOISE -Vehicular noise on highways						
3. WATER POLLUTION						
4. ENERGY CRISIS						
5. OVERPOPULATION						

POLITICAL CHECKS AND BALANCES

ENVIRONMENTAL ISSUE	CONTRIBUTING FACTORS	EXISTING LEGISLATION	NEEDED CHANGES IN LEGISLATION	CITIZEN INPUT POSSIBLE	EXAMPLES OF CHECKS AND BALANCES REGARDING ISSUE
1.					
2.					
3.					
4.					
5.					
6.					
7.					

QUOTES ON POPULATION TO THINK ABOUT AND DISCUSS:

"The effects of overcrowding of humans have not been evaluated. However, from studies of animals, it seems likely that there must be adverse effects. Ecological studies have shown that animals have minimum needs for private space. To reduce crowding, animals kill each other or engage in mass suicide. Experiments with rats showed that when crowded in cages, patterns of courting, nest-building, and rearing the young were disrupted. Aggressions and fighting increased, and sexual conduct became more sadistic. Studies of many other animals show that crowding aggravates all forms of pathology within a group and causes high blood pressure, circulatory diseases, and heart disease."

Philip H. Abelson, Ph.D.
American Association for the Advancement of Science

"Either man controls his exploding population, his crowding into cities, and his industrial activities, or he faces disaster through his pollution and manipulation of our planetary environment."

Irving S. Bengelesdorf, Ph.D.
Los Angeles Times

"We are engaged in a race between catastrophe and the intelligent use of technology, and it's not at all clear we are going to win."

Dr. Jerome Wiesner
Massachusetts Institute of Technology

EFFECTS OF OVERPOPULATION UPON ENVIRONMENT AND SOCIETY

WATER	AIR	FOOD	ENERGY	NOISE	HEALTH	SOCIAL BY-PRODUCTS

INDIVIDUAL PRACTICE OF ENVIRONMENTAL CHECKS AND BALANCES

Sending letters, telegrams, and petitions are some ways in which individuals can express their opinions to their federal, state, and local government representatives. Personal letters written to legislators carry a great deal of weight when a legislative vote count is taken. It has been estimated that EVERY LETTER RECEIVED BY A LEGISLATOR IS CONSIDERED TO REPRESENT THE OPINION OF 500 VOTERS!

LEGISLATORS: FEDERAL:

STATE:

LOCAL:

WHAT YOU CAN DO ABOUT THE ENVIRONMENTAL CRISIS

- Take a bus
- Ride a train
- Join a car pool
- Buy a small car

  - Ride a bike
  - Try walking
- Write your Congressman
- Your Legislator
- Write them again
- Call your Councilman
- Call the Mayor
  - Ask for questions
  - Ask for action
- Don't believe simple answers
- Ask how
- Ask when
- Keep a record
- Vote accordingly
- Just vote

  - Clean up a park
  - Create a park
  - Plant a tree
  - Plant a thought
- Pick up a wrapper
- Return your empties
- Organize a paper drive
  - Join a group
  - Start a group
- Listen to the kids
- Talk to your friends
- Make a speech

- Stop at two
- Adopt a third
- Learn about birth control
  - Love your country
  - Don't leave it, Fix it up
- Take a picture
- Show it to somebody
  - Don't wear wild furs
  - Boycott crocodile products
- Breathe deeply
- Cough

- Get mad

  - Ban DDT
  - Stop a Dam
  - Report a polluter
  - Complain to the company

- Get the lead out
- Do your thing
- Know your rights
- Get right with nature
- Change some laws

  - Think what might be
  - Ask why not
- Smell a flower
- Feel the bark
- Watch a bird
- Listen to the insects
- Dip your feet in a brook

THERE IS SOMETHING YOU CAN DO TO HELP

SUGGESTED BOOKS AND FILMS WHICH EMPHASIZE PEOPLE IN THEIR ENVIRONMENT

Chapin, Cynthia   CLEAN STREETS, CLEAN WATER, CLEAN AIR   Whitman   c1970

Beginning readers will like this book which shows the way city pollution problems are handled ideally.

Warner, Matt   YOUR WORLD - YOUR SURVIVAL   Abelard-Schuman   c1970

A dark picture of the population explosion, pollution of air, water and soil, the extinction of wildlife through wanton destruction, are all discussed in this tersely written book. Immediate remedial programs are suggested.

Peet, Bill   THE WUMP WORLD   Houghton Mifflin   c1970

An effective picture book parable on the subject of pollution.

CITIES (all grades - color - 10 minutes - S.L.)

The growth of our modern cities from the crossroads community is traced in this absorbing film. Opening with the early day trading posts, it moves on to the specialization that is the hallmark of today's communities. Also explains and illustrates the interdependence of people. The pupil can easily grasp the simple theory of taxation that pays for municipal services as described in this film.

IT'S YOUR CHOICE (26 3/4 minutes - color)

The importance of repair and maintenance on property is dramatized through the story of one landlord who refuses to comply with the housing code and another who does comply. Covers tenant-landlord communications and how a court deals with a violator. A public service film that is highly informative.

#4543   GEORGIA CENTER FOR CONTINUING EDUCATION, U. of GEORGIA

MAN'S IMPACT ON THE ENVIRONMENT (color - 20 minutes - Inter. and Upper, PTA - S.L.)

Excellent film on the effective study of ecology and man's relationship to his surroundings. Balance of nature is well produced with simple explanation.

POPULATION AND POLLUTION (17 minutes - color - P.L.)

Focusing on North America, the film presents the problems of pollution caused by misuse of the environment and the demands of a constantly growing population.

POPULATION ECOLOGY (color - 19 minutes - S.L.)

Examines some of the factors which limit the growth of plant and animal populations in their natural environment; explains how man's success in shaping his environment to meet his needs has affected the growth rate of human populations; and considers the causes of the "population explosion"----and some of the problems related to it.

THIS IS NO SLUM (29 minutes - color)

A City Housing Inspector inspects the home of a family and finds violations of the minimum standard housing code. They consider moving to a new home. How they solve their problem and an overview of the housing situation in general make an informative public service film.

#4544   GEORGIA CENTER FOR CONTINUING EDUCATION, U. of GEORGIA

TO CLEAR THE AIR (22 minutes - color)

Discusses one of the most complex problems facing our society - air pollution. Shows the roles of industry, government and the individual in the fight for cleaner air.

#4193   AMERICAN PETROLEUM INSTITUTE

WATER: PATTERN OF LIFE (30 minutes - color - P.L.)

A pictorial report on Ohio's water supply emphasizing its importance to public health and to the State's economic and industrial development. Shows how nature keeps the water supply in balance and how this balance is endangered by the expansion of population and industry, necessitating pollution control. A visual presentation of what is being done and what remains to be undertaken.

IN SATISFYING THEIR BASIC NEEDS People interact with their environment. In their everyday living people use resources and produce waste by-products which affect their health.

SOLID WASTE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

HUMAN SURVIVAL

People are responsible for managing their interaction with the environment:

ENVIRONMENT	PEOPLE	COOPERATIVE ACTION	CONSUMERISM
[illegible]	[illegible]	[illegible]	PRODUCT SAFETY (TOYS)
[illegible]	[illegible]	[illegible]	POWER OF CONSUMER
EFFECT UPON PEOPLE	[illegible]	[illegible]	EFFECT OF QUALITY CONTROL (FOOD-MILK)
[illegible]	[illegible]	[illegible]	JOINT ACTION
[illegible]	[illegible]	[illegible]	LAWS – AGENCIES
[illegible]	[illegible]	[illegible]	CONSUMER EVALUATION CRITERIA

HUMAN MOTIVATION

People must be educated to believe that their environment and health are in jeopardy.

[illegible]		ALTERNATIVES

Through cooperative planning and action PEOPLE CAN meet basic needs while PRESERVING THE QUALITY OF LIFE.

LEARNING STATEMENTS

Our society may destroy its living and habitable environment unless our people carefully choose environmental ALTERNATIVES.

The scope and vision with which we choose environmental alternatives may ultimately affect our very survival.

In seeking environmental alternatives, we should bear in mind that personal health and community health are directly interwoven with world health.

Environmental alternatives involve environmental and life-style trade-offs.

Basically, there are two approaches which underlie environmental alternatives:

1. Conservation by restricting use, efficient use, and/or recycling.
2. Technological Advances to provide new environmental resources and/or to protect those already available.

Nature's own recycling efforts cannot keep pace with our growing population, our increased demand for resources, and our multiplying waste disposal problems.

Maximizing our use of resources in most cases necessitates that we make a commitment away from convenience.

The United States of America has been dubbed a "Disposable Society".

Underlying most environmental alternatives is the need for us to move away from a "depreciation economy" toward a "re-use economy".

In the process of selecting alternatives, we must realize that there are moral, social, political, economic, and legal forces at work as well as environmental ones.

In order to maintain our quality of life, we must co-operatively choose environmental alternatives with care and respect for HUMAN LIFE and for the elements in our PHYSICAL ENVIRONMENT.

People must make a moral, financial, and life-style commitment to carefully choose among environmental ALTERNATIVES.

LEARNING

In order to develop an understanding of the need to choose environmental alternatives wisely, students should research and discuss each of the following topics:

- -definition and need for environmental ALTERNATIVES
- -ALTERNATIVES to specific environmental problems
- -economic, political, health and technological factors to be considered in choosing among ALTERNATIVES
- -factors which can help convince people to alter their life-styles by choosing ALTERNATIVES

ALTERNATIVES AND TRADE-OFFS

1. Explain, through classroom demonstration of specific tasks, the relationships which exist between the following:
   - -time
   - -convenience
   - -energy
   - -environmental resource
2. Class, divided into committees, to role-play the impact one's life-style has upon consumption of resources. Each group to enact two scenes: (a) convenience-consumption scene; (b) conservation through alternatives scene
3. Construct charts or murals to show the "convenience-consumption" use of resources as opposed to the "conservation through ALTERNATIVES" use of resources.
4. Make a class survey to show that we have a "depreciation economy" (as opposed to a "reuse economy"). You may wish to base your survey around such items as automobile depreciation, furniture depreciation, etc. Do these same factors influence property values?
5. Using nuclear reactors as an example, discuss how ALTERNATIVES sometimes create conflict within the environmental, political, health, scientific, industrial, and residential factors within a community. Chart various reactions to different ALTERNATIVES.
6. Research how ERTS (Earth Resources Tracking Stations) is an attempt to locate new resources on Earth.

ACTIVITIES

Discuss how HISTORY plays a part in the selection of ALTERNATIVES.

1. For example, the household trash of the 1970's contains less and less food wastes and coal ashes than it did during the 1920's. Food and coal wastes decompose and return to the soil whereas glass and plastics do not.
2. Students to research the beneficial effect that conservation efforts undertaken now will have years from now. (For example, it has been estimated that for every pound of sulfur dioxide harnassed and recycled into sulfuric acid, one-half pound of elemental sulfur remains untouched as a natural resource.)

Research the RESOURCE RECOVERY ACT passed by Congress in 1970.

1. What interrelationships exist in the recovery of resources? (For example, in the burning of solid waste to produce heat or power, the heat of combustion may be utilized as an energy source.)
2. Committees should investigate specific environmental problems and ALTERNATIVES relating to solid waste, noise, city planning, energy, population growth, etc.
3. Trace other federal conservation legislation pertaining to each environmental area.

Evaluate personal ALTERNATIVES to a specific situation. For example, keeping cool in hot weather:

- -hand fan
- -electric fan
- -air conditioner
- -swimming
- -lighter weight clothing
- -frequent showering

LEARNING

1. Students to discuss this statement:

   > "The price of energy, or any
   > resource, should reflect
   > its true cost."

2. Research the following and their relevance to energy costs:
   - subsidies through depletion allowance
   - reclamation of stripmined land
   - repeal of the Price-Anderson Act
   - cost of handling nuclear wastes
3. Study nuclear fission power as an energy alternative. Conduct a debate FOR and AGAINST such plants. (Refer to "ARGUMENTS IN ENVIRONMENTAL ALTERNATIVES" chart included in folder insert.)
4. What specific measures are individual families being urged to practice in order to conserve energy? Make a list of these ALTERNATIVES.
5. During periods of gasoline shortage, we often hear of automobiles which run on energy other than gasoline. How might such vehicles be powered?
6. Invite to class a car mechanic to discuss various automotive adjustments which would help a driver to protect the environment. (For example, fixing a faulty carburetor, replacing a noisy muffler, etc.)

ACTIVITIES

ALTERNATIVES and the URBAN ENVIRONMENT

1. What is "urban blight"? Does the term apply to our city?
2. Class to make a study of the community to determine if it is afflicted with urban blight.
    - a. Determine criteria
    - b. Evaluate existing conditions
    - c. Suggest improvements
    - d. Contact city officials
3. DEBATE: "Is urban blight inevitable?"
4. How might each of the following relieve urban blight?
    - -low cost housing
    - -improved transportation
    - -entertainment facilities
    - -business growth
    - -stricter law enforcement
    - -hotels and convention centers
5. Discuss the different ways in which staggered work hours would affect people and our environment.
6. What would an ALTERNATIVE be to grafitti, vandalism, and destruction in our community?
7. Describe how each of the following is related to preservation of our human resources:
    - -adult education
    - -prison reform
    - -rehabilitation center for alcoholics
    - -day care centers
    - -venereal disease free clinic
    - -on-the-job training
8. Write a "Pollution Prescription" for your community. How might the class help to "fill the prescription"?

Using charts or drawings, show how EMERGING NATIONS choosing among ALTERNATIVES can make environmental decisions which would help to break the vicious cycle of poverty, disease, and economic dependence.

Conduct an in-depth class study of ENERGY as a resource in order to point out how a CRISIS can demand the need for IMMEDIATE ALTERNATIVES and how environmental planning is vital.

TEACHER NOTES

APPLICATION TO LOCAL COMMUNITY

1. CONTACTS TO MAKE:
    - a. Sierra Club
    - b. Recycling Council
    - c. Car Mechanic
    - d.
    - e.
2. FIELD TRIP POSSIBILITIES:
    - a. Recycling Station
    - b. Natural History Museum
    - c. Junkyard

VOCABULARY

alternatives
solid waste management
recycling
decomposition
"disposable society"
energy
energy crisis
fossil fuels
nuclear reactors
nuclear fission power
kilowatt
horsepower
"returnables"
"non-returnables"
composting
"technological advances"
"product consumption"
"planned obsolescence"
depreciation
"urban blight"
grafitti
urban renewal
"Vestpocket Park"

MATERIALS NEEDED

Research materials
Newspapers and news magazines
Letter-writing supplies
Consumer catalogs
Art supplies

BOOKS, FILMS, AND PAMPHLETS HELPFUL IN ENRICHING A STUDY OF ENVIRONMENTAL ALTERNATIVES

BOOKS: Haley, Gail E. NOAH'S ARK Atheneum c1971
Present day fable-modern day Noah concerned with our polluted world builds an ark and loads it with two of each species of the remaining animals. For years they sail the seas until the skies are clear and the waters pure again. Integrated text and pictures.

Hyde, Margaret O. FOR POLLUTION FIGHTERS ONLY McGraw Hill c1971
Thorough coverage of all aspects of pollution. The appendage contains valuable suggestions for organizations fighting pollution, state control centers and other facilities for those interested in further study or careers.

Selden, George TUCKER'S COUNTRYSIDE Farrar c1969
Tucker Mouse is called to Connecticut to use his resourcefulness to save the pasture for the wildlife.

Schere, Monroe YOUR CHANGING CITY Prentice-Hall c1969
A simple explanation of city planning and the aspects it must consider with possible radical change for cities of the future.

FILMS: 1985 (3 parts - 58 minutes - color - P.L.)
Using a "You Are There" format, well-known contemporary newscasters from vital areas of the U.S. are presented to project the viewer into the future and to show the results of man's assult on his environment.

CONSERVING OUR NATURAL RESOURCES (Inter. - color - 19 minutes - S.L.)
Explains that science has found new ways to get the most from resources and to use new materials. Points out also that waste and pollution of resources have not been eliminated. Stresses need for conservation.

HOW WILL WE KNOW IT'S US? (28 minutes - color)
How communities across the country have renewed declining old residential and commercial sections by bringing their fine old buildings back to life. It also shows how through Urban Renewal programs old buildings of architectural or historic interest can be made useful today.
#3234 NATIONAL TRUST FOR HISTORIC PRESERVATION

MULTIPLY...AND SUBDUE THE EARTH (67 minutes - 2 parts - S.L.)
Examines the problems caused by unplanned use of the natural environment - i.e. overcrowded cities, polluted air, endangered sources of food and water supply.

POPULATION EXPLOSION (Upper - color - 15 minutes - S.L.)
Shows how advances in medical technology are reducing mortality, thereby giving rise to a great shortage of food for the people of the world. Efforts to increase food production output in underdeveloped nations are explained.

PAMPHLETS TO WRITE FOR:

-"A Citizen's Guide to Cleaner Air" - manual for citizen action. (Conservation Foundation, 1717 Massachusetts Avenue N.W., Washington, D.C. 20036)
-"Citizen Action Can Get Results" (Circulation Branch Office of Public Affairs, Environmental Protection Agency, Washington, D.C. 20460
-"Citizen's Guide to Action For Clean Water" (Izaak Walton League, 1800 N. Kent Street, Arlington, Virginia 22209)

-"Community Action For Environmental Quality" (U.S. Government Printing Office, Washington, D.C.)
-Information on energy-producing windmills (F. W. Davey, Box 120, Oakleigh, Victoria 3166, Australia)
-"Innovative Cars" (Environmental Protection Agency)
-Information on numerous issues (League of Women Voters, 1730 M St., N.W., Washington, D.C. 20036)
-"Mission 500" - an alternative to the solid waste problem (Environmental Protection Agency)
-"The Solid Waste Fact Book" (Public Affairs Dept., Glass Container Manufacturers Institute, Inc., 330 Madison Avenue, New York, N. Y. 10017)

CONSIDERATIONS IN CHOOSING ENVIRONMENTAL ALTERNATIVES

Students should recognize that whenever an environmental alternative is sought, there are various points of view expressed by political, health, scientific, industrial, residential, and often agricultural sectors of the community. The public, through its legislators, must evaluate all points of view and arrive at a decision.

Using the now forbidden pesticide, DDT, as an example, show, in detail, how the above statement is applicable.

1. Why was DDT banned? On a chart, trace the path it takes to cause environmental damage.
2. Describe how "the pesticide turned into the pest".
3. Role-play the various points of view expressed during the decision-making period prior to the ban.
4. What is now being used in place of DDT? (Refer to Folder on Chemicals.)

Follow this same procedure in discussing and completing the chart below:

EXAMPLES OF ARGUMENTS WHICH ARISE IN CHOOSING ENVIRONMENTAL ALTERNATIVES				
ENVIRONMENTAL PROBLEM	ALTERNATIVE	FOR	AGAINST	ALTERNATIVE
1. Shortage of Fossil Fuels	NUCLEAR FISSION POWER	-Difficult to prove that electricity produced by nuclear fission is more environmentally damaging than other forms of electricity AT POINT OF USE -Chronic health problems produced by production of electricity with fossil fuels are actually more severe than the possible acute problems caused by accidents at a nuclear power plant.	-Technical problems still unsolved -Waste disposal problems -Transportation problems -Threat of disaster -Problems relating to the emergency core cooling systems	Public Environmental Education to try to lower demand for any kind of electricity through energy conservation measures.
2.	ANTI-POLLUTION CONTROLS ON AUTOMOBILES			
3.	BIRTH CONTROL			

LIFESTYLE ALTERNATIVES AND ENVIRONMENTAL TRADE-OFFS

ALTERNATIVES		
chemical fertilizer	vs	leaf compost
use of car	vs	walking
use of rat poison	vs	use of rat traps
polyester jacket	vs	cotton jacket
TV entertainment	vs	family parlor games
frozen foods	vs	home canning
escalator	vs	walking upstairs
eating TV dinners	vs	eating salads
electric dishwasher	vs	hand washing dishes
electric eye doors	vs	manual door opening
crime	vs	outdoor lighting
electricity	vs	solar energy
fur-lined leather gloves	vs	woolen gloves
	vs	
	vs	
	vs	

TRADE-OFFS		
potential for pollution during manufacture and use	vs	recycling of natural resource
	vs	
	vs	
	vs	
	vs	
	vs	
	vs	

CITIZEN ACTION TOWARDS IMPROVED ENVIRONMENTAL QUALITY

ENVIRONMENTAL AREA	SUGGESTED CITIZEN ACTION
AIR	1. Don't burn trash or leaves 2. Replace home furnace filters often 3. 4.
WATER	1. Repair dripping faucets 2. 3. 4.
SOLID WASTE	1. Don't litter 2. Separate, for recycling, household wolid wastes 3. 4.
NOISE	1. Replace worn car muffler 2. 3. 4. 5.
ENERGY	1. Use public transportation or a small, economy car 2. 3. 4.
CHEMICAL	1. Limit use of phosphate detergents 2. 3. 4.

ADDITIONAL LEARNING ACTIVITIES OF ENVIRONMENTAL ALTERNATIVES AS EXPRESSED THROUGH LANGUAGE ARTS

1. Write an essay dealing with environmental alternatives in response to one or more of the following:
    a. Is it possible for a country to operate upon a philosophy of environmental isolationism? Explain your answer.
    b. The Cost of Pocketbook vs. The Cost of Survival
    c. New lifestyles and changing family roles
    d. Environmental influences upon quality of life and longevity
    e. Programs of public assistance and the dignity of people
    f. The importance of having a good feeling about one's home and work
    g. The balance of need for privacy and community activities

2. Conduct a "CONSERVATION BEE" in the same manner as the traditional Spelling Bee substituting for words to be spelled, ALTERNATIVES for students to suggest.

3. Play with words in describing our environment. Invent new phrases; old phrases, such as "as white as snow", "as happy as a toad", "sunny skies ahead", etc. may no longer hold true.

4. Create a story pretending you are one of the following:
    a. a car stuck in traffic
    b. a soda pop bottle headed for the city dump
    c. a flower dying from sooty leaves (clogged stomata)
    d. a mother whose baby was bitten by a rat
    e. a city child without any place to play

    End your story with an ALTERNATIVE

5. Consult The Last Whole Earth Catalogue. The new edition (available in libraries and bookstores) describes how a family might change their life-style to "return to nature".

6. Describe: "The Vestpocket Park Of My Dream"

7. Write an autobiography of a FAMILY CAR. Include conception, gestation, birth, adoption, early life, middle years, later life, death, burial or otherwise.

8. Borrow from various TV game shows, ideas to develop formats for class games dealing with environmental ALTERNATIVES.

9. Using the pamphlet, "Citizen Action Can Get Results", role-play such situations as that of the airline captain who, defying threats that he would be fired, refused to jettison fuel from his aircraft. His action helped to pressure airlines into discontinuing this polluting practice.

10. Create a crossword puzzle using environmental terms with their appropriate definitions. For example:

thermostat
abatement, as in noise abatement
crowding
ear muffler
energy crisis
lead cape
mass transportation
off-shore dumping
recycle
smog
famine
pesticides
congestion
conservation
rodenticides
consumerism
air alert
light dimmer
vacant house
solid waste
life-style
birth control
urbanization
pollution

RECYCLING AS AN ENVIRONMENTAL ALTERNATIVE
ADDITIONAL LEARNING ACTIVITIES FOR A STUDY OF RECYCLING

1. It has been said that individual solid waste output has almost doubled in the last 50 years, and may double again in the next 50 years.
   a. Explain the bearing that increased solid waste output has upon use and conservation of natural resources.
   b. Do you feel that changed individual behavior can have an impact upon this problem? (Refer to chart, "INDIVIDUAL CITIZEN AND ALTERNATIVES TO HOUSEHOLD SOLID WASTE" on folder insert.)
2. Explain how these four words work together to transmit the essence of solid waste management and environmental preservation:
   -CONTROLLING....the quantity and characteristics of wastes
   -COLLECTING.....and processing efficiently those wastes which must be removed
   -RECYCLING......those wastes which can be reused
   -DISPOSING......properly of those wastes which have no further use
3. Weigh these ALTERNATIVES to solid waste disposal. Chart comparative costs, convenience, energy used, environmental damage resulting.
   -open dumping -incineration -recycling
   -sanitary landfill -open burning
4. Conduct a class survey to ascertain recycling needs and acceptance. Include in your survey questions pertaining to quantity of recyclable items, recycling methods, willingness of citizens to separate recyclable items, local recycling facilities, etc.
5. Explore whether industrial wastes are being recycled in your community.
   a. What are the problems involved?
   b. What are the relative costs involved?
   c. What are the benefits involved?
6. Explain why our solid waste problems would probably be relieved if every person would voluntarily limit his own consumption of products.
   a. What is meant by the term "planned obsolescence"?
   b. Cite examples to illustrate how specific products might be reused rather than discarded. (Refer to "Household Rummage Recycling" chart on folder insert.) Consult "Heloise"!
   c. With the help of class mothers, students might enjoy conducting a RUMMAGE SALE.
   d. Creative thinking might result in suggesting new uses for discarded materials. (Did you know that some unbreakable dishes are actually recycled from old coffee grounds?)
7. Survey your neighborhood shops to learn of public acceptance of recycled products. What methods are used to develop and expand markets for recycled materials?
8. From whom might you find out how recycled tires are being used for underwater reefs, playground swings, or for other purposes?
9. How are car batteries and mufflers recycled? Trace the process. Visit a junkyard to learn of other recyclable materials. What else might you learn from a trip to a junkyard?
10. On Nov. 26, 1970, the Los Angeles Times estimated that 25 million pounds of aluminum toothpaste tubes are discarded and forgotten each year.
    a. What ALTERNATIVES are there? Are there any?
    b. Write to toothpaste manufacturers and elicit their feelings of environmental responsibility?
11. Creative artwork might be stimulated by the following statement:

    We must limit our consumption of non-recyclable materials or we will soon be buried by them.

12. Make a collage of discards or write a story entitled "From Rags to Riches" or decorate a dollhouse using mostly recycled materials.

13. How has Oregon's "Bottle Bill" helped its solid waste problem? What is Ohio doing in this respect? Did you know that:
    -It costs up to 33% more per ounce to purchase beverages in throw-aways than in returnable bottles.
    -A bottle can be expected to be reused 7 to 9 times before a new one is made.
14. Compare the refuse output of the United States (one ton per person per year) with that of an underdeveloped nation. What factors play a part in this comparison?
15. Refer to "Solid Wastes" folder for diagram depicting loss of resource vs. conservation of resource.

NATURAL ENVIRONMENTAL RECYCLING

NATURE RECYCLES MANY OF ITS OWN NATURAL RESOURCES

PREPARATION FOR SPRING

Mother Earth begins to stretch
  And shake dreary winter from her hair
Then looks around at the melting scene
  To see what needs repair

First she stills the raging rivers
  With stern and warning looks
And turns them once again to being
  Calmly flowing brooks

Next she reaches out and wakens trees
  And asks they do their best
To raise leafy arms that welcome birds
  Returning home to nest

Then she gently pushes little buds
  From beneath the thawing ground
To grow in wondrous grandeur
  In bright sunshine all around

Soon she puffs up gentle breezes
  And softly whispers, "come out and see"
All the lovely, lovely Springtime
  Now ready for you and me.

-Frieda Grushcow

PEOPLE HELPING NATURE TO RECYCLE RESOURCES

RESOURCE	NATURAL RECYCLING PROCESSES	PEOPLE-INDUCED RECYCLING PROCESSES
1. WATER	WATER CYCLE	Aeration Filtration Waste water treatment
2.		
3.		
4.		
5.		

CITIZEN ACTION AND PARTICIPATION IN SOLVING THE SOLID WASTE PROBLEM

THE INDIVIDUAL AND HIS ALTERNATIVES IN REDUCING HOUSEHOLD SOLID WASTE

ITEM	FORM OF WASTE	ALTERNATIVES TO REDUCING THE WASTE	ALTERNATIVES TO REUSING THE WASTE	CALCULATED ENVIRONMENTAL SAVING IF PRACTICED BY 30 PEOPLE
1. Daily newspaper				
2. TV dinner tray				
3.				
4.				
5.				
6.				

HOUSEHOLD RUMMAGE "RECYCLING"

PRODUCT	OLD USE	NEW USE	ENVIRONMENTAL BENEFIT
1. Cracked coffee mug	beverage container	pencil holder	no solid waste
2.			
3.			
4.			
5.			
6.			

RECYCLING RESOURCE INFORMATION

EDUCATIONAL FILMS AVAILABLE ON RECYCLING/SOLID WASTES

You may wish to contact the distributors for detailed information of the film's subject matter and then borrow or rent the following films:

URBAN ECOLOGY: GARBAGE DISPOSAL

Color, 7 minutes, rental = $8.

*Over-packaging and over-consumption as major causes of solid waste problems.

Distributor:
BFA Educational Media
211 Michigan Ave.
Santa Monica, California 90404

RECYCLING ATLANTA

Color, 3 minutes, free loan

*Discusses magnetic separation of metallic waste from mixed refuse.

Distributor:
Ruder & Finn, Inc.
110 E. 59th St.
New York, N. Y. 10022

Sponsor:
Carbonated Beverage Container Mfg. Association

RECYCLING SAN FRANCISCO

Color, 3 minutes, free loan

*Discusses regional approach to solid waste processing and recycling

Distributor:
Ruder & Finn, Inc.
110 E. 59th St.
New York, N. Y. 10022

Sponsor:
Carbonated Beverage Container Mfg. Association

STEEL-THE RECYCLED MATERIAL

Color, 10 minutes, free loan

*Discusses electromagnetic steel separation and recycling.

Distributor:
Association-Sterling Films
866 3rd Ave.
New York, N. Y. 10022

Sponsor:
American Iron & Steel Institute

THE GREAT ALL-AMERICAN TRASH CAN

Color, 13 minutes, free loan

*Discusses solid waste problems and glass recycling

Distributor:
Commonwealth Film Distributors
1440 S. State College Blvd., 6-K
Anaheim, California 92806

Sponsor:
Glass Container Corp.

WEALTH OF THE WASTELAND

Color, 27 minutes, free loan

*Discusses several methods of recycling.

Distributor:
U. S. Bureau of Mines-Motion Pictures
4800 Forbes Ave.
Pittsburgh, Pa. 15213

RECYCLING WASTE

Color, 12 minutes, rental = $11.

*Discusses the manufacturers' role in creating the problem and encourages change.

Distributor:
Journal Films, Inc.
909 W. Diversey Pkwy.
Chicago, Ill. 60614

THE REALITIES OF RECYCLING

Color, 38 minutes, rental = $30.

*Discusses financial aspects of recycling and encourages cooperation of government, industry, & citizens to promote recycling.

Distributor:
Stuart Finley, Inc.
3428 Mansfield Rd.
Falls Church, Va. 22041

Sponsor:
U. S. Bureau of Solid Waste Mgt.

ECOLOGY LADY

Color, 11 minutes, rental = $15.

*Discusses one person's efforts to initiate a recycling center and the problems that are encountered.

Distributor:
Stuart Finley, Inc.
3428 Mansfield Rd.
Falls Church, Va. 22041

RECYCLING

Color, 21 minutes, rental = $20.

*Discusses various methods of recycling, including some unique approaches to solving the solid waste problem.

Distributor:
Stuart Finley, Inc.
3428 Mansfield Rd.
Falls Church, Va. 22041

Sponsor:
U. S. Bureau of Solid Waste Mgt.

THE SAN DIEGO EXPERIENCE

Color, 17 minutes, free loan

*Discusses successful volunteer aluminum can recycling program.

Distributor:
Modern Talking Picture Service, Inc.
2323 New Hyde Park Rd.
New Hyde Park, N. Y. 11040

Sponsor:
Aluminum Co. of America

CYCLES

Color, 14 minutes, free loan

*Discusses methods of recycling

Distributor:
Association-Sterling Films
866 3rd Ave.
New York, N. Y. 10022

Sponsor:
Glass Container Mfg. Institute

RECYCLING RESOURCE INFORMATION

ORGANIZATIONS WITH INFORMATION ON RECYCLING/SOLID WASTES

You may wish to contact these organizations and request additional information:

Aluminum Association
750 3rd Ave.
New York, N. Y. 10017

American Iron and Steel Institute
1000 16th St., N. W.
Washington, D. C. 20036

American Public Works Association
1313 East 60th St.
Chicago, Ill. 60637

American Society of Civil Engineers
345 47th St.
New York, N. Y. 10017

Bureau of Mines
U. S. Dept. of the Interior
4800 Forbes Ave.
Pittsburgh, Pennsylvania 15213

Bureau of Solid Waste Management
U. S. Dept. of HEW
12720 Twinbrook Parkway
Rockville, Maryland 20852

Can Manufacturers Institute Inc.
821 15th St., N. W.
Washington, D. C. 20005

Environment Action
Rodale Press
Emmaus, Pennsylvania 18049

Friends of the Earth
917 15th St., N. W.
Washington, D. C. 20036

Glass Container Institute of America
1130 17th St., N. W.
Washington, D. C. 20036

Glass Container Manufacturers' Institute
1800 K. St., N. W.
Washington, D. C. 20036

Institute of Scrap Iron and Steel
1739 H St., N. W.
Washington, D. C. 20006

Izaak Walton League of America
1326 Waukegan Rd.
Glenview, Ill. 60025

Keep America Beautiful, Inc.
99 Park Ave.
New York, N. Y. 10016

National Association of Container Distributors
603 S. 21st St.
Irvington, N. J. 07111

National Association of Secondary Material Industries
330 Madison Ave.
New York, N. Y. 10017

National Center for Resource Recovery
1211 Connecticut Ave., N. W.
Washington, D. C. 20036

National Industrial Pollution Control Council
Washington, D. C. 20230

National Solid Wastes Management Association
1022 15th St., N. W.
Washington, D. C. 20005

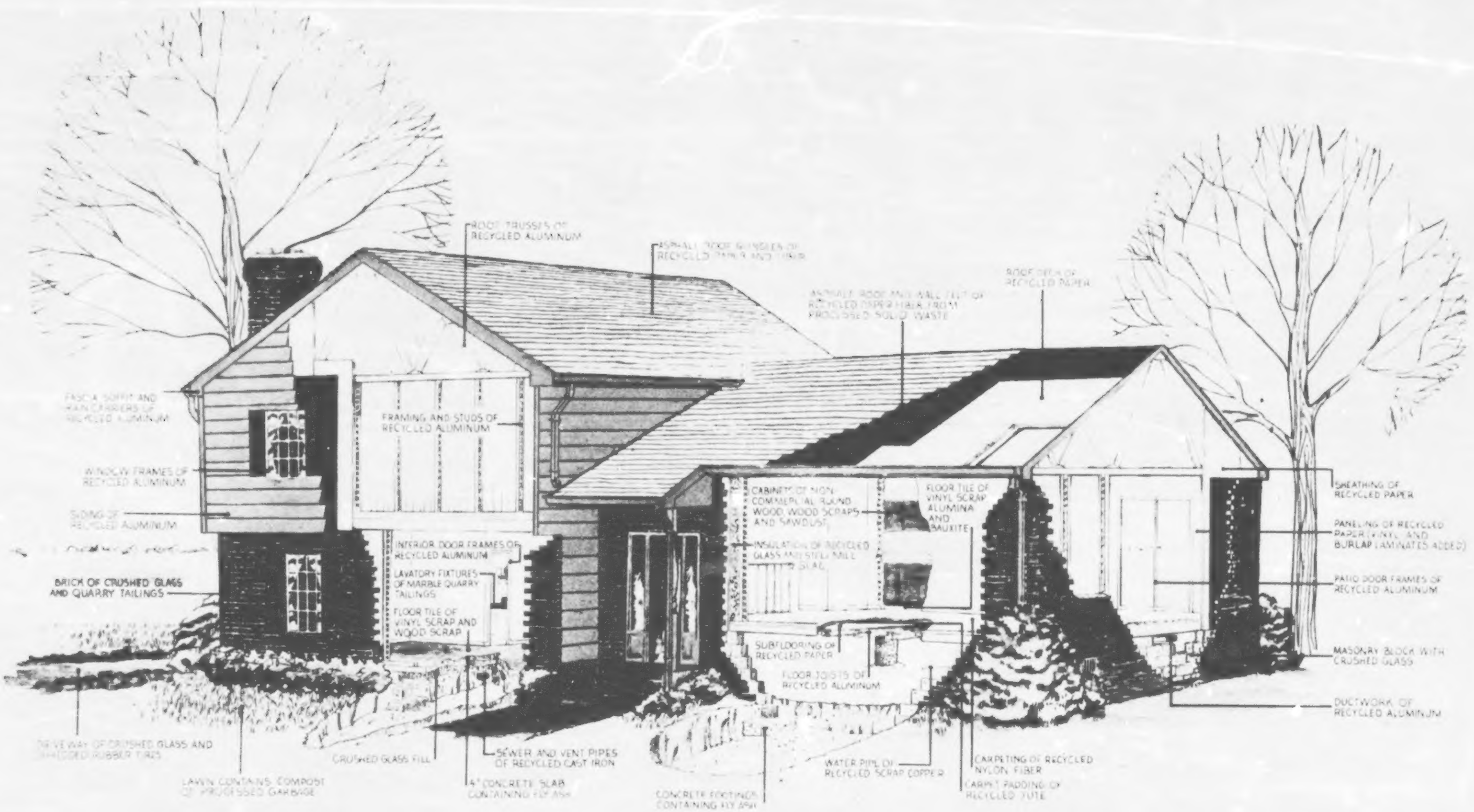
National Wildlife Federation
1412 16th St., N. W.
Washington, D. C. 20036

Sierra Club
1050 Mills Tower
San Francisco, California 94104

Solid Waste Publications Unit
National Environmental Research Center
U. S. Environmental Protection Agency
Cincinnati, Ohio 45268

U. S. Environmental Protection Agency
Washington, D. C. 20460

U. S. League of Women Voters
1730 M. St., N. W.
Washington, D. C. 20036


ROOF TRUSSES OF RECYCLED ALUMINUM
ASPHALT ROOF SHINGLES OF RECYCLED PAPER AND FIBER
ASPHALT ROOF AND WALL FELT OF RECYCLED PAPER FIBER FROM PROCESSED SOLID WASTE
ROOF DECK OF RECYCLED PAPER
FASCIA, SOFFIT AND RAIN CARRIERS OF RECYCLED ALUMINUM
FRAMING AND STUDS OF RECYCLED ALUMINUM
WINDOW FRAMES OF RECYCLED ALUMINUM
SIDING OF RECYCLED ALUMINUM
INTERIOR DOOR FRAMES OF RECYCLED ALUMINUM
LAVATORY FIXTURES OF MARBLE QUARRY TAILINGS
FLOOR TILE OF VINYL SCRAP AND WOOD SCRAP
BRICK OF CRUSHED GLASS AND QUARRY TAILINGS
CABINETS OF NON-COMMERCIAL ROUND WOOD, WOOD SCRAPS AND SAWDUST
INSULATION OF RECYCLED GLASS AND STEEL MILL SLAG
FLOOR TILE OF VINYL SCRAP, ALUMINA AND BAUXITE
SUBFLOORING OF RECYCLED PAPER
FLOOR JOISTS OF RECYCLED ALUMINUM
SHEATHING OF RECYCLED PAPER
PANELING OF RECYCLED PAPER (VINYL AND BURLAP LAMINATES ADDED)
PATIO DOOR FRAMES OF RECYCLED ALUMINUM
MASONRY BLOCK WITH CRUSHED GLASS
DUCTWORK OF RECYCLED ALUMINUM
DRIVEWAY OF CRUSHED GLASS AND SHREDDED RUBBER TIRES
LAWN CONTAINS COMPOST OF PROCESSED GARBAGE
CRUSHED GLASS FILL
SEWER AND VENT PIPES OF RECYCLED CAST IRON
4" CONCRETE SLAB CONTAINING FLY ASH
CONCRETE FOOTINGS CONTAINING FLY ASH
WATER PIPE OF RECYCLED SCRAP COPPER
CARPETING OF RECYCLED NYLON FIBER
CARPET PADDING OF RECYCLED JUTE

Reprinted with permission from
Reynolds Aluminum
Reynolds Metals Company
Richmond, Virginia 23261

RECYCLED HOME FACT SHEET

PURPOSE:

To demonstrate that recycled materials can now be used advantageously in normal construction.

BUILDER:

Sam Kornblau, president of Realty Industries, Richmond, Va.

ARCHITECT:

Robert H. Clark, AIA, of Carlton, Taylor and Clark, Richmond, Va.

SPONSOR:

Reynolds Metals Company.

LOCATION:

10100 Cherrywood Drive at the intersection of Ednam Forest, Henrico County, Virginia (metropolitan Richmond).

CONSTRUCTION DATES:

Started February 1973; Completed August 1973.

MARKET VALUE:

$60,750.

MATERIALS USED:

Aluminum scrap (equivalent to 183,500 12-ounce aluminum cans) in frames, joists, trusses, windows, soffit, fascia, rain-carrying equipment, patio doors and siding.

Crushed glass (enough to produce 124,000 average 12-ounce non-returnable beverage containers) for brick, concrete block and driveway pavement.

Recycled newspapers (about 8½ tons, the amount found in 100 tons of typical garbage) for sub-flooring, sheathing, paneling and roof deck.

Fly ash collected by air pollution control equipment at a coal burning electric plant (equivalent to 18 tons of coal needed to produce 41,000 kilowatt-hours of electricity) in concrete.

Marble quarry tailings for lavatories, tub and shower receptor . . . Recycled nylon fibers and recycled jute for carpeting and carpet padding . . . Steel mill furnace slag for insulation . . . Recycled paper and fibers for asphalt shingles . . . Wood scraps and sawdust for kitchen and bathroom cabinets . . . Recycled copper and scrap cast iron for piping . . . Recycled New York garbage for outside yard compost.

APPENDIX

A. AN ENVIRONMENTAL APPROACH TO HEALTH AND QUALITY LIVING

1. SANITATION IS A WAY OF LIFE

It is the quality of living expressed in the clean home, the clean farm, the clean school, the clean business and industry, the clean neighborhood, the clean community.

Being a way of life, it must come from within the people.

It is nourished by knowledge and grows as an obligation and an ideal in human relations.

2. MAN'S ENVIRONMENT

Man's physical and mental health is his most precious possession.

Fundamental to health is a control of the environment.

First in control of the environment is sanitation.

Traditionally, sanitation has emphasized survival, notably through the control of epidemic disease.

But, today, sanitation is more than a means to survive; it is a means to thrive.

3. NEW HORIZONS

There are new horizons today in environmental health as man promotes health, security, pride and happiness for himself, his family and the entire community.

4. THE CHALLENGE

Man living close to man in modern society poses new problems in the maintenance of health.

Challenging our ingenuity are problems brought about by modern cities.

Rapid growth of industry
New products and services
Modern transportation
Starting new developments in the sciences

Urgently needed today - to safeguard our health tomorrow - is a new and positive approach to environmental health.

5. A POSITIVE PROGRAM

Environmental health is based upon human needs directed toward human wants.

Founded upon scientific principles.

Planned by all groups concerned.

Operated with human understanding

Encouraging people to help themselves, it aims at:

1. Education in the need for prevention of hazards to health.
2. Voluntary participation of all people.
3. Development of attitudes, understanding, practices and facilities for a clean, sanitary, and inspiring environment.

B. LIST OF SOME FACTORS WHICH INFLUENCE ENVIRONMENTAL HEALTH, COMFORT, AND SAFETY OF INDIVIDUALS

accidental injury
advertising
aging
agricultural products
air quality
air pollution
alcoholism
animal life
antibiotics
athletics
atomic energy
automobiles

bacteria
bathroom facilities
birth control
blight
burned-out buildings

central heating
chemicals
cigarettes
citizen action groups
clothing
congestion
contamination
construction
consumer products
cooking procedures
crime in the streets

disease
disease transmission and control
drug use and abuse

ecological programs
educational facilities
elected officials
employment opportunities

famine
family patterns
family relationships
fire
fish
floods
fluoridation
food and food contamination
food production and handling

garbage storage, removal and disposal
government
governmental agencies

hazardous toys
heating
heredity
highways
housing
hygiene

icy roads
industrial products
industrial safety
industry
insecticides
insects
insurance
international cooperation

jet airplanes
job security

law enforcement
laws
lead poisoning
library facilities
life expectancy
liquid wastes
littering
local business

machinery
malnutrition
medical care
milk production and handling
mining
money

narcotics
noise
nuclear medicines
nuclear reactors
nutrition

odor
over population

peace
people
pets
pesticides
physiology
plant life
population density
population explosion
poverty
public health services

quackery and consumer health

racial tension
radiation
rats
recreation
recycling
refrigeration
rehabilitation
religious beliefs and customs
riots

sanitation practices
scientific medicine
scientific research
services - governmental, agency, individual
sewage system
sexual mores and behavior
sharp objects
social customs
soil
solar energy
solid waste
storms
strip mining
stress - emotional, mental, physical, and psychological

taxation
traffic - cars, trucks, buses, planes
transportation
travel to distant areas

urban blight - urban, suburban, rural

vaccines
vacant abandoned houses
vector transmissions
ventilation

war
water quality
water pollution
water supply
weather
weeds
wildlife

zoning

C. AUDIO-VISUAL AIDS - FILMS

There are many excellent 16mm films available on the various facets of the environment. Such films are able to greatly enhance an environmental education program when they are meaningfully interwoven into the curriculum.

Those films listed in "AN EDUCATIONAL GUIDE FOR PLANNING AN IMPROVED HUMAN ENVIRONMENT" are, for the most part, available from one of three sources:

1. Cleveland Public Library
2. Cleveland Public Schools
3. Modern Talking Picture Service

1. CLEVELAND PUBLIC LIBRARY (P.L.)

The Cleveland Public Library (code in this Guide: P.L. for Public Library) requests an insurance and handling charge of 10¢ per 10 minute reel for black and white films and 20¢ per 10 minute reel for color films.

Bookings may be made through the Audio-Visual Department, 3rd floor of the Main Branch's Business and Science Building.

2. CLEVELAND PUBLIC SCHOOLS (S.L.)

Films available for use within the Cleveland Public Schools are designated with the code: S.L. for School Library.

Cleveland teachers should contact the Bureau of Visual Education located at 2026 Murray Hill Road, Cleveland, for use of any of these films.

There is no charge for this service.

3. MODERN TALKING PICTURE SERVICE

The remainder of the movies listed in this Guide are available on a free-loan basis (you pay return postage only) from:

MODERN TALKING PICTURE SERVICE
2323 New Hyde Park Road
New Hyde Park, N. Y. 11040

Contact the main office address listed above, or any of the regional offices listed below or on the following page, indicating film title, film number, film producer, play-date, and alternate date film is desired, as well as your name, name of group or school, your title, and complete mailing address.

ATLANTA, GA. 30308
412 W. Peachtree St., N.W.

BOSTON, MASS. 02167
230 Boyiston St.
Chestnut Hill
(617) 527-4184

BUFFALO, N.Y. 14202
122 W. Chippewa St.
(716) 853-1805

CEDAR RAPIDS, IOWA 52404
200 Third Avenue, S.W.
(319) 363-8144

CHARLOTTE, N.C. 28202
503 No. College St.
(704) 377-2574

CHICAGO, ILL. 60611
160 E. Grand Avenue
(312) 467-6470

CINCINNATI, OHIO 45202
9 Garfield Place
(513) 421-2516

CLEVELAND, OHIO 44115
2238 Euclid Avenue
(216) 621-9469

DALLAS, TEX. 75207
1411 Slocum St.
(214) 742-4106

DENVER, COL. 80204
1200 Stout Street
(303) 244-4621

DETROIT, MICH. 48235
15921 W. 8 Mile Road
(313) 273-2070

HARRISBURG, PA. 17105
2009 N. Third St.
(P.O. Box 3035)
(717) 238-8123

HONOLULU, HAWAII 96813
Film Services of Hawaii, Ltd.
716 Cooke Street
(808) 536-9105

HOUSTON, TEX. 77027
4084 Westheimer Road
(713) 622-3841

INDIANAPOLIS, IND. 46204
115 E. Michigan St.
(317) 635-5331

KANSAS CITY, MO. 64111
3718 Broadway
(816) 561-1208

LOS ANGELES, CAL. 90038
1145 N. McCadden Place
(213) 469-8282

MARYLAND HEIGHTS, MO. 63043
86 Weldon Parkway
(314) 567-4278

MILWAUKEE, WIS. 53202
1696 N. Astor Street
(414) 271-0861

MINNEAPOLIS, MINN. 55420
9129 Lyndale Ave. S.
(612) 884-5383

NEW YORK, N.Y. 10036
1212 Ave. of the Americas
(212) 586-5530
Serving boroughs of Manhattan
&Bronx only.

PHILADELPHIA, PA. 19107
1234 Spruce St.
(215) 545-2500

PITTSBURGH, PA. 15222
910 Penn Avenue
(412) 471-9118

SAN FRANCISCO, CAL. 94105
16 Spear Street
(415) 982-1712

SEATTLE, WASHINGTON 98103
1205 N. 45th Street
(206) 632-8461

SUMMIT, N.J. 07901
315 Springfield Avenue
(201) 277-6300
Serving N.J., Southern N.Y. State
and boroughs of Brooklyn, Queens
and Richmond of NYC.

WASHINGTON, D.C. 20036
2000 "L" Street, N.W.
(202) 659-9234

D. GOVERNMENTAL AGENCIES AND PEOPLE IN THE ENVIRONMENT

1. CITY OF CLEVELAND

Air
Cleveland Department of Public Health and Welfare
Air Pollution Control Division
2735 Broadway
Cleveland, Ohio 44115
(216) 694-3310

Community Development
Cleveland Department of Community Development
1320 East 6th Street
Cleveland, Ohio 44114
(216) 694-2790

Consumerism
Cleveland Office of Consumer Affairs
Room 119 City Hall
601 Lakeside Avenue
Cleveland, Ohio 44114
(216) 694-3206

Environmental Health
Cleveland Department of Public Health and Welfare
Office of Environmental Education and Public Information
1925 St. Clair Avenue
Cleveland, Ohio 44114
(216) 694-2300

Health Education
Cleveland Department of Public Health and Welfare
Division of Health Education
1925 St. Clair Avenue
Cleveland, Ohio 44114
(216) 694-2510

Housing
Cleveland Department of Community Development
Dividion of Housing
Room 504 City Hall
601 Lakeside Avenue
Cleveland, Ohio 44114
(216) 694-2825

Nutrition
Cleveland Department of Public Health and Welfare
Nutrition Services
1925 St. Clair Ave.
Cleveland, Ohio 44114
(216) 694-2510

Parks
Cleveland Department of Public Properties
Division of Parks
4200 S. Marginal Road
Cleveland, Ohio 44114
(216) 694-2487

Public Utilities
Cleveland Department of Public Utilities
1825 Lake Avenue
Cleveland, Ohio 44114
(216) 694-2440

Shade Trees
Cleveland Department of Public Properties
Division of Shade Trees
750 East 88th St.
Cleveland, Ohio 44108
(216) 694-3104

Solid Waste
Cleveland Department of Public Service
Division of Solid Waste Collection and Disposal
Room 25 City Hall
601 Lakeside Avenue
Cleveland, Ohio 44114
(216) 694-2151

Water
Cleveland Water Pollution Control Division
1201 Lakeside Avenue
Cleveland, Ohio 44114
(216) 694-2750

2. STATE OF OHIO

Ohio Department of Agriculture
Division of Public Information
Room 719 Ohio Departments Building
65 South Front Street
Columbus, Ohio 43215
(Toll free: 1-800-282-1955)

Ohio Department of Commerce
Division of Consumer Protection and/or
Division of Public Information
275 East State Street
Columbus, Ohio 43215
(Toll free: 1-800-282-1960)

Ohio Department of Health
Environmental Health Division
450 East Town Street
Columbus, Ohio 43216
(614) 469-5510

Ohio Department of Natural Resources
Fountain Square
Columbus, Ohio 43224

Ohio Environmental Protection Agency
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087
(216) 425-9171

Ohio Environmental Protection Agency
Public Interest Center
P.O. Box #1049
Columbus, Ohio 43216

3. FEDERAL

Center for Disease Control
Atlanta, Georgia 30333
(All diseases with an environmental
control component such as food-
borne disease control, insect con-
trol, hospital sanitation, etc.)

U. S. Consumer Product Safety
Commission
Washington, D.C. 20207

U. S. Consumer Product Safety
Commission (Local Office)
DEB Annex
21000 Brookpark Road
Cleveland, Ohio

U. S. Department of Agriculture
Office of Communication
Washington, D.C. 20250

U. S. Department of Defense
Office of Civil Defense
Washington, D. C. 20210

U. S. Department of Health, Education,
and Welfare
Welfare Administration
Children's Bureau
Washington, D. C. 20203

U. S. Department of Labor
Bureau of Labor Standards
Washington, D. C. 20210

U. S. Department of Treasury
Bureau of Narcotics
Washington, D. C. 20226

U. S. Environmental Protection Agency
Washington, D. C.

U. S. Environmental Protection
Agency
21929 Lorain Road
Fairview Park, Ohio 44126
(216) 333-7000

U. S. Environmental Protection
Agency
Air Pollution Control Office
Research Triangle Park
Durham, North Carolina 27711

U. S. Environmental Protection
Agency
Noise Information Retrieval System
Office of Noise Abatement and
Control
Washington, D. C. 20460

U. S. Environmental Protection
Agency
Office of Radiation Programs
Washington, D. C. 20460

U. S. Environmental Protection
Agency
Solid Wastes Office
1 North Wacker Drive
Chicago, Illinois 60606

U. S. Environmental Protection
Agency
Division of Water Hugiene
Water Quality Office
1 North Wacker Drive
Chicago, Illinois 60606
(312) 353-1050

U. S. Food and Drug Administration
200 "C" Street, S.W.
Washington, D. C. 20204

U. S. Food and Drug Administration
Regional Office
Engineers Building
Cleveland, Ohio 44114
(216) 522-4802

U. S. Government Printing Office
Superintendent of Documents
Washington, D. C. 20201

E. INDUSTRIAL AND ASSOCIATION REFERENCE SOURCES

AEROSPACE MEDICAL ASSOCIATION
Washington National Airport
Washington, D. C. 20001

AETNA LIFE AND CASUALTY COMPANY
Hartford
Connecticul 06103

AIR CONSERVATION COMMITTEE (Lung Association)
4614 Prospect Avenue
Cleveland, Ohio 44103
(216) 361-0545

AIR POLLUTION CONTROL ASSOCIATION
4400 Fifth Avenue
Pittsburgh, Pennsylvania 15213

ALLERGY FOUNDATION OF AMERICA
801 Second Avenue
New York City, New York 10017

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE
1515 Massachusetts Avenue, N.W.
Washington, D. C. 20005

AMERICAN ASSOCIATION FOR CONSERVATION INFORMATION
1416 Ninth Street
Sacramento, California 95814

AMERICAN ASSOCIATION FOR HEALTH, PHYSICAL EDUCATION AND RECREATION
1201 Sixteenth Street, N.W.
Washington, D. C. 20006

AMERICAN ASSOCIATION FOR NURSERYMEN
835 Southern Bldg.
Washington, D. C. 20005

AMERICAN ASSOCIATION OF POISON CONTROL CENTERS
Education Committee
10525 Carnegie Avenue
Cleveland, Ohio 44106

AMERICAN CONSERVATION ASSOCIATION
30 Rockefeller Plaza
New York, New York 10020

AMERICAN DRY MILK INSTITUTE
130 N. Franklin Street
Chicago, Illinois 60606

AMERICAN FOREST PRODUCTS INDUSTRIES
1835 K Street, N.W.
Washington, D. C. 20006

AMERICAN FORESTRY ASSOCIATION
919 17th Street, N.W.
Washington, D. C. 20006

AMERICAN HOME ECONOMIC ASSOCIATION
1600 Twentieth Street, N.W.
Washington, D. C. 20006

AMERICAN INSTITUTE OF ARCHITECTS
1735 New York Ave., N.W.
Washington, D. C. 20006

AMERICAN INSTITUTE OF NUTRITION
9650 Wisconsin Avenue
Washington, D. C. 20014

AMERICAN INSTITUTE OF PLANNERS
917 Fifteenth Street, N. W.
Washington, D. C. 20005

AMERICAN INSURANCE ASSOCIATION
85 John Street
New York City, New York 10038

AMERICAN MEDICAL ASSOCIATION
535 N. Dearborn Street
Chicago, Illinois 60610

AMERICAN SOCIETY FOR AGRONOMY
677 Segoe Road
Madison, Wisconsin 53711

AMERICAN SOCIETY OF LANDSCAPE ARCHITECTS
2000 K Street, N.W.
Washington, D. C. 20006

AMERICAN SOCIETY OF PLANNING OFFICIALS
1313 East 60th Street
Chicago, Illinois 60637

AMERICAN SOCIETY OF SAFETY ENGINEERS
5 North Wabash Avenue
Chicago, Illinois 60602

APPALACHIAN TRAIL CONFERENCE
1718 N. Street, N.W.
Washington, D. C. 20036

BETTER BUSINESS BUREAU
Keith Building
Cleveland, Ohio 44115

BOY SCOUTS OF AMERICA
Greater Cleveland Council
Woodland and East 22nd Street
Cleveland, Ohio 44115
(216) 361-6060

CALIFORNIA ROADSIDE COUNCIL
2626 Ocean Avenue
San Francisco, California 94132

CALIFORNIA TOMORROW
Monadnock Building
681 Market Street
San Francisco, California 94105

CHANDLER NATURE CENTER
37047 Ridge Road
Willoughby, Ohio 44094
(216) 946-5000, Ext. 310

CITIZENS FOR CLEAN AIR
40W 57th Street
New York City, New York 10019

CITIZENS FOR CLEAN AIR AND WATER, INC.
312 Park Building
140 Public Square
Cleveland, Ohio 44114
(216) 781-0880

CLEVELAND AUDUBON SOCIETY
2063 E. 4th Street
Cleveland, Ohio 44115
(216) 861-5993

CLEVELAND AUTOMOBILE CLUB
6000 S. Marginal Road
Cleveland, Ohio 44103
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FLORIDA CITRUS COMMISSION
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Washington, D. C. 20036

NATIONAL FIRE PROTECTION ASSOCIATION
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Boston, Massachusetts 02110

NATIONAL HEALTH COUNCIL
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Chicago, Illinois 60611

NATIONAL SAND AND GRAVEL ASSOCIATION
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Silver Springs, Maryland

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NATIONAL YOUTH CONFERENCE ON NATURAL BEAUTY AND CONSERVATION
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Cleveland, Ohio 44106
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204 Fifth Avenue
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709 Wire Building
Washington, D. C. 20005

TEACHER'S NOTES: ADDITIONAL SOURCES OF INFORMATION

F. GLOSSARY OF ENVIRONMENTAL TERMS

The following is a partial listing of environmental terms. It is suggested that students compile a more complete glossary by entering on 3 x 5 index cards each of these terms as well as those encountered while involved in the activities suggested in this Guide. It should be noted that most of these definitions have been simplified for young people to aid in their comprehension of the terms.

Abatement

The stopping of or reducing the intensity of , as in "noise abatement".

Additives

Substances used in food for the purpose of preserving coloring, thickening, and flavoring. The additives may or may not be harmful.

Air Pollution

The term given to describe the condition of dirty air and the way it got that way through man's activities; man-made contamination of the atmosphere beyond that which is natural; dirty air.

Airshed

A common air supply demarcated by arbitrary or convenient borders, such as an urban area.

Algae

Tiny (microscopic) plants which live in water. Although some kinds of algae are necessary and desirable, too much algae can give water a bad taste and smell. Possible new food source.

Aquatic

Having to do with water.

Atmosphere

All the air surrounding the earth.

Balance of Nature

The process in nature that keeps animal and plant populations more or less the same size. Each population is prevented from growing too large by other populations and the environment.

Biodegradable

The breaking up (decomposition) of wastes specifically by a biological process.

Biosphere

All living things together with their environment; specifically, the sum of the earth's waters, land crust, and atmosphere.

Biota

All living organisms, both plant and animal, of a region or period.

Breed

To produce off-spring.

Bubonic Plague
("The Black Death") the disease carried by rats which wiped out 1/4 of the entire population of Europe, or over 25 million people, in the XIII Century.

Building Code
A set of laws describing the necessary condition of buildings in order for them to be considered healthful and safe for people to live in them.

Burrow
A hole or tunnel dug into the ground by an animal for shelter.

Carcinogen
A substance which is capable of provoking cancer.

Chlorine
A disinfectant used to sterilize glassware, swimming pool water, drinking water, etc.

Citizen Action Group
A group of people who join together to solve specific community problems.

Compacted Garbage
Garbage which has been tightly crushed by a machine into a dense, solid, small square so that it takes up less space.

Compost Pile
A mixture of vegetable and fruit peelings, coffee grounds, egg shells, tea leaves, dead leaves, and grass clippings with soil which will decompose and fertilize soil.

Conservation
The protection of resources to see that they are not used up, wasted, harmed, or destroyed; the conservation of forests is very important; the conservation of human resources is as important as the conservation of natural resources.

Consumer
A person who buys somethings, uses it up, and disposes of it.

Consumer Protection
Measures taken to guard the health and safety of everyone who purchases or uses products or services.

Contaminate
To make impure or unclean by contact; food can be contaminated by unclean hands, disease-carrying insects, etc.

Decibel
A measure of noise based on the sound pressure that hurts the inner ear. The weakest sound that can be picked up by a healthy human ear is zero decibels.

(ex) one (1) motorcycle = 90 decibels
gentle breeze = 0 decibels
a busy street = 85 decibels
rock music = 107 decibels

Decomposers
Fungi and bacteria (and other living plants and animals) which extract energy from dead plants and animals and contribute to their decay.

Decomposition
The breaking up of, as in wastes.

Degradable Waste
Substances which are changed in form and/or reduced in quantity by biological, chemical, or physical means. (Biodegradable = by biological means.)

Demography
The study of populations using such statistics as births, deaths, illnesses, marriages, etc.

Demolition
The planned tearing down or destroying of. (Demolition was planned for the two vacant houses on Maple Street.)

Desalination
Any chemicals which can kill harmful bacteria.

Dissolved Oxygen
Refers to oxygen which is dissolved in water. (Dissolved oxygen is essential for fish and other aquatic life.)

Droppings
Bird and animal waste matter.

Dump
A land disposal site where solid wastes are deposited.

Ecological Balance of Nature
See "balance of nature".

Ecology
The study of living things in their environments.

Ecoside
A substance which enters, permeates, and kills an entire system such as a lake, community, insect pest, etc.

Ecosystem
A particular environment including all living and non-living things in that environment. (A pond, including all its plant and animal life, its water supply, and the atmosphere around it, forms an ecosystem.)

Effluent
The water which flows out of a septic tank or waste treatment plant.

Energy Cycle
The process by which the energy of the sun is passed from one living organism to another or is stored, as in oil or coal.

Environment

Everything around us or in a particular area; all the external conditions and influences affecting the life, development, and ultimately the survival of an organism.

Environmental Decay

This term refers to the deterioration or gradual spoiling or decline of an environment.

Environmental Health

This term refers to the protection of community health and comfort through control of the environment. Such areas as milk and food inspection, rat and insect control, accidental injury and air or water pollution control.

Epidemic

An unusual and unexpected outbreak of a particular disease or health problem. (There is now an epidemic of Venereal Disease.) (Bubonic plague, a disease carried by rats, caused an epidemic in Durope in the XIII Century.)

Epidemiology

The study of diseases as they affect populations rather than individuals, including the distribution and incidence of a disease; mortality and morbidity rates; and the relationship of climate, age, sex, race, and other factors.

Estuary

A coastal area of high marine productivity where fresh and salt waters mix such as tidal rivers, marshes, flats, lagoons, bays, and shallow sounds.

Exterminate

To destroy or wipe out completely the existence of living things whose existence is considered undesirable. (Rat poison is used to exterminate rats.)

Extinct

To be no longer in existence. (Due to man's carelessness, the passenger pigeon became an extinct species in 1914.)

Food Additives

Substances added to food to increase vitamin or mineral content, or appearance.

Food-Borne Infection

The term given to the illness which results from the eating of contaminated food. (Symptoms of food-borne infection are acute stomach upset, diarrhea, nausea, and vomitting caused by a bacterial agent.)

Food Poisoning (intoxication)

The term given to the illness which results from the eating of contaminated food. (Symptoms of food poisoning are acute stomach upset, diarrhea, nausea, and vomitting caused by a chemical agent.)

Food Preservatives
Substances added to food to keep it from spoiling.

Flea
A small jumping insect without wings that lives on a larger animal sucking its blood for food.

Garbage
Animal or vegetable scraps resulting from the preparation, cooking, and/or eating of foods to be thrown away.

Garbage Disposal
This term refers to the way garbage is gotten rid of.

Gnaw
To chew. (Rodents, such as rats, must gnaw in order to keep their teeth from growing into their heads.)

Greenhouse Effect
The effect of pollutants in the air that absorb infra-red or heat rays and, thus, prevent the radiation back into space of a certain fraction of the energy earth receives from the sun.

Green Revolution
The increase in agricultural products to keep pace with population growth.

H_2O
Chemical symbol for water: two (2) parts (atoms) hydrogen, one (1) part (atom) oxygen.

Habitat
The immediate area or region in which an animal or plant lives; the native environment of a living organism.

Harborage
A shelter; the place where rats eat and live.

Health
The condition of well-being in a person's body and/or mind; free from sickness.

Health Hazard
Anything that would be dangerous or bad for one's well-being.

Herbicide
A chemical which is intended to kill or injure plant life by interferring with normal growth.

Homogenized
In milk, to distribute the fat evenly throughout the milk so it does not rise to the top in the form of cream.

Hydrology
The study of water.

Incinerate
To burn. (Garbage is incinerated in an incinerator.)

Incisors
A rodent's front teeth; a person's front cutting teeth.

Infection
A causing of disease by germs in people, animals, and plants.

Infest
To be numerous in and take over in a (infestation) troublesome manner. (The building was rat-infested.)

Insect
Any of group of small animals, usually wingless, including beetles, bees, cockroaches, flies, mosquitoes, ticks, wasps, etc.

Insecticide
Substance used for killing insects.

Inversion
The dangerous condition which results when a layer of cool air prevents a layer of warm air from rising - causing the warm air to become stagnant and pollution-heavy.

Leachate
Chemical and/or bacteriological pollution of the water table due to drainage from a contaminated source.

Lead Poisoning (lead intoxication)
An illness caused by eating of or extensive skin exposure to lead-containing mixtures such as certain paints.

Life Cycle
The repetitive process, from birth to death, of each succeeding generation.

Litter
Little bits of paper, tin cans, etc., scattered about in an untidy manner.

Litter
The offspring born at one time by a rat, cat, dog, or other animal that produces several young at one time.

Lot
A piece of land.

Lot Clean Up
An effort to rid lots of debris, litter, and garbage which provide food and harborage for rats.

Natural Resources
Materials coming from nature such as trees (lumber), water, soil (coal, iron ore, gold, silver), etc.; not man-made.

Non-renewable Resources
Resources, such as oil and coal, which once used up cannot renew themselves.

Noxious Gases
poisonous gases

Nuisance
Anything that is harmful or annoying to the public's health.

Nutrition
The study of how living things use food for growth, energy, and the repair of their bodies.

Ordinance
A law.

Ortho-Toludine
The chemical used to test the presence of chlorine.

pH
A measure of the alkaline or acidity of water; ideal range 7.2 - 7.8; ("pH" is a term used by sanitarians in testing swimming pool water.)

Particulate Matter
A particle of solid or liquid matter.

Particulates
Dust and soot in the air.

Pasteurize
To heat hot enough and long enough to kill harmful bacteria or germs but not all organisms present.

Perishable
That which spoils, rots, or decays easily.

Phosphates
Salts and esters of phosphoric acid containing phosphorus. In detergents, Phosphates are undesirable since they add to the pollution problem.

Photosynthesis
The process by which the energy in light converts CO_2, H_2O, and inorganic salts into plant tissue.

Pica
The term used to describe the condition when a person craves unnatural food such as clay, lead, chalk, etc.

Plankton
Microscopic floating plant and animal organisms in water.

Pollutants
Those elements which contribute to make something unclean.

Pollute
To make unclean; dirty; detrimental to health.

Pollution

The state or process of making unclean or dirty.

Public Health

The term referring to that field of work which protects the well-being and safety of the community.

Radiation

The process by which energy is transmitted through space or through a gas, liquid, or solid in the form of waves from an emitting body to a receiving body.

Radioactivity

Occurs when a substance, generally containing a nuclear isotope, emits either nuclear particles or very high energy light rays (gamma rays).

Rat

A member of the rodent family.

Rat Control

The term given to the whole effort limiting the population and infestation of rats (includes rat-stoppage, rat-proofing, rat-baiting, etc.)

Rat-Proofing

The process of making changes to a building to prevent rats from entering, such as replacing broken glass or screening on lower windows, cementing foundation cracks and holes, etc.

Rat-Stoppage

The process of halting rats from further infesting a building by taking corrective measures.

Recycle

To use again; to undergo further treatment in order to put to "next highest use".

Refuse

Useless stuff; waste; rubbish. (The street-cleaning department removed all the refuse from the streets.)

Renewable Resources

Those biological resources which are capable of renewing themselves by growth and reproduction.

Rodent

The family to which rats, mice, squirrels, hamsters, gerbils, beavers, and muskrats belong; the animal family characterized by constantly growing incisors adapted for gnawing or nibbling.

Rubbish

Unwanted, useless stuff; trash which is thrown out; all solid wastes which are burnable and non-burnable such as paper, tin cans, glass, bottles, plastic containers, grass clippings, etc.

Sanitarian (Public Health Sanitarian)

A person whose education and experience in the biological and sanitary sciences qualify him to engage in the promotion and protection of the public's health, safety, and well-being.

Sanitation

The process by which people's health is protected by the keeping of homes and communities clean; having good drainage, a pure water supply, good ventilation, and sewage disposal.

Sanitary Landfill

A solid waste disposal operation whereby solid waste is buried in the ground and covered with a thin layer of soil at the end of each day to keep out insects and rats.

Septic Tank

A large underground container used to dispose of sewage through a filtering process.

Sewage

The waste matter which passes through sewers.

Sewer

An underground pipe which carries off waste water.

Slum

The term loosely used to refer to an area in which sub-standard housing exists.

Smog

A mixture of smoke and fog in the air; the irritating haze resulting from the sun's effect on certain pollutants in the air, mainly those from automobile exhaust.

Solid Waste

Left over materials which are no longer of use and are not a liquid or gas (example; tires, aluminum cans, rubbish, grass clippings, etc.).

Sonic Boom

Shock wave produced by movement of objects through the atmosphere at speeds faster than the speed of sound.

Sterilize

To kill all organisms by bringing to a high temperature with steam, dry heat, or boiling liquid.

Strip-Mining

The removal of natural resources from the ground level and leaving deep open trenches behind.

Symbiosis

The association of two or more organisms for mutual benefit.

Thermal Pollution

The addition of heat to a lake or stream or air. An increase in water temperature fosters algae growth, reduces oxygen-holding capacity, and increases the rates of utilization of dissolved oxygen.

Trash

Rubbish, refuse.

Trophic Level

The energy level at which an organism sustains itself.

Unsanitary Conditions

Unclean situations which threaten the health of people. Some "unsanitary conditions" might be poor drainage, unpure water supply, poor ventilation, inadequate sewage disposal, etc.

Urban

City-like; pertaining to cities.

urban = city
suburban = outside of or bordering a city
rural = country

Urban Blight

The condition by which the growth of a city is halted and conditions begin to deteriorate.

Urban Renewal

A program aimed at renovating, improving, and beautifying blighted city areas, particularly housing, schools, businesses, etc.

Urbanization

The process of making more city-like; the migration (moving to make a new home) of people from the countryside into cities; the changes a growing city makes in the land and in the lives of people.

Vacant Houses

Houses which have no people living in them. (Vacant houses are buildings which are often burned, looted, used in peddling drugs, etc.)

Vandal

A member of a Germanic tribe that sacked Rome in 455 A.D.; one who maliciously destroys works of art, public or private property, etc.

Vector

An insect capable of transmitting germs or other agents of disease. (Rodents, flies, roaches, ticks and fleas are vectors.)

Wastes

That which is left-over and is no longer of use.

Water Cycle

The constant changing of water from liquid to vapor and then back to liquid again. The two forces that furnish the energy for the cycle are the sun and gravity. The sun warms the water, giving energy for evaporation. Gravity pulls the water droplets back to earth.

Water Pollution

The term given to describe the condition of dirty water and the way it got that way through man's activities; man-made contamination of water beyond that which is natural; dirty water.

Water Purification

To make water clean enough to drink by freeing it of dirty elements.

Watershed

An area that collects and drains off water to a collection center such as a stream, a lake, or an ocean.

Wetland

Two types: Inland - an area that is usually wet or flooded
Coastal - marshes

Wind

The natural, horizontal movement of air.

INDEX

The following INDEX is offered as a guideline, only, to the contents of this volume.

All of the concepts and activities have been carefully interwoven into a complete interdisciplinary curriculum. Consequently, separating each activity and unit into rigid environmental categories is not always possible.

A

Accidental Poisonings & injuries, 56, 60-61, 63-64, 66, 73, 92, 100, 128, 142-144, 148-150, 164-168, 170, 182-183

Aesthetic Environment, 72, 76-78, 80-81, 88-89, 100-101, 108-110, 112, 116-117, 120-122, 128-130, 195 (land use), 174-232 (conservation)

Air Quality, 40-46, 72, 76, 100, 121, 128, 132, 138, 174-232 (conservation)

B

Beautification, 77, 84, 97, 104-105, 112, 117-118, 120-122, 124-125

Block Clubs/Street Clubs, 125

C

Cause and Effect(environmental), 72, 186, 174-232(conservation)

Charts, 16(solid waste), 24(noise), 30(noise), 38(radiation), 46(air quality), 51,54(water quality), 62(pesticides), 66(home accidental poisonings), 94(people-story), 145-146(children & hazardous toys), 162(consumerism), 167(consumer protection agencies), 168 (consumer action), 173(food storage), 185(evolution & prediction grid), 186(cause & effect factors), 187(diseases), 188(variables to human health), 195(land use factors), 196(use & misuse of natural resources), 202(citizen commitment to conservation), 211-212(checks & balances), 214(overpopulation), 223-224 (environmental alternatives), 227-228(recycling)

Chemicals, 61-66, 132, 138, 164-168, 170, 174-232(conservation)

Citizen Action, 96-97, 112-113, 116-117, 120-126, 148-150, 158-162, 174-232(conservation)

City Planning (see Aesthetic Environment)

Conservation, 174-178(resources, life-styles, technology), 180-190(health vs. disease), 192-196(resources - use & misuse), 198-204(of resources), 206-216(checks & balances), 218-232(alternatives)

Consumerism, 142-146(product safety - toys), 148-150(power of consumer), 152-156 (quality control), 158-162(legal action), 164-168(laws - agencies), 170-174(evaluation criteria)

D

Drugs (see Chemicals, Accidental Poisoning)

E

Environmental Evaluation, 138-140, 170-174, 174-232(conservation)

Experiments, 18-19(solid waste), 23-24(noise), 32-34(radiation), 45(air quality), 48-49, 53(water quality), 57-58(lead poisoning), 73(insect & rodent infestation), 72(necessity of water to life), 85(swimming pool water quality), 101(plant & animal behavior), 121(effect of cooperative effort), 153-156(food wholesomeness), 174(food tests)

F

Food Protection, 72, 96, 112, 125, 132, 148-150, 152-156, 159, 164-168, 170-174

G

Garbage, (see Solid Waste)

H

Home Accidents, 72, 92, 100 (also see Accidental Poisonings & Injuries)

Housing, 56-58

I

Insect Infestation, 72, 76

Insecticides, (see Pesticides)

Internationalism, 132-134, 138-140, 174-232(conservation)

L

Lead Poisoning, 56-59

Litter, 85-86, 116-117, 120, 125, 128, 158

M

Man-made vs. Natural Environment, 69, 108-109

N

Natural Resources, (see Resources, Conservation)

Neighborhood Environment, 68-69, 72-74, 76-77, 80-82, 84-85, 88-90, 96-98, 100-101, 104-106, 112-130, 221

Noise, 22-30, 72, 76, 100, 121, 125, 138, 150, 174-232(conservation)

P

People, 92-97, 100-106, 112-113, 116-117, 120-122

Pesticides, 60-66, 132, 138, 174-232(conservation) esp. 223

Population, 174-232(conservation) esp. 206, 214

Problem-Solving Process, 10, 128-130

Product Safety, 142-144, 159

Public Health, 15, 17(solid waste), 22, 24, 25(noise), 32, 35, 37(radiation), 40-46(air quality), 48-53(water quality), 56-58(home environment, mental health, lead poisoning), 60-65(pesticides, chemical controls), 66(home accidental poisonings), 72-74(clean vs. unclean environment), 76-77(neighborhood), 80(aesthetics), 96(food protection), 100-101 (psychological factors), 104-105(apathy), 132-134(internationalism), 135-136(historical public health figures), 138(progress), 169(consumerism), 170-174(health & safety criteria of consumer products), 180-190(conservation:health vs. disease), 212(checks & balances)

Public Properties, 84-86(parks, playgrounds), 88-90(vandalism), 116-118(schools)

R

Radiation, 32-38, 132, 138

Radioactivity, 32

Rat Control, 15, 17-18, 56, 105, 112, 121, 132, 138

Recreation, 84

Recycling, 14, 16, 20, 121, 218-232

Refuse Disposal, 14-20, 138

Resources, 14-20(solid waste), 22-30(sound - noise), 31-38(radiation), 40-46 (air), 48-54(water), 56-58(shelter), 60-66(chemicals)

Rodents, (see Rat Control)

S

Shelter, 56-58, 128

Solid Waste, 14-20, 76, 81, 116, 121, 138, 174-232(conservation, alternatives)

Surveys, 20(solid waste), 27(noise), 28(noise), 38(radiation), 41(air quality), 48(water quality), 60-65(chemical usage), 81(neighborhood attitudes), 82(block survey), 85(litter), 90(vandalism), 97-98(yard survey), 106(community problems), 114(community problems), 116(responsibility), 125(Block Clubs), 143(product safety), 161(citizen concern), 183 (home & neighborhood accident survey), 218(depreciation factors)

T

Toy Safety, 142-144, 159

U

Urban vs. Suburban vs. Rural, 77

Urban Canvasses, 89, 109, (see Aesthetic Environment)

V

Vandalism, 77, 88-90, 158

W

Water Quality, 47-54, 72, 76, 85-86(swimming pool water quality), 132, 138, 174-232(conservation and alternatives)

PLEASE NOTE:

It might again be emphasized here that the first section in this volume deals with RESOURCES, and that the last section deals with the CONSERVATION of these Resources.

The four sections which lie between these two sections deal primarily with the NEIGHBORHOOD and the PEOPLE who live there. Examples of both Resources and Conservation of Resources are interwoven throughout these four units.